



## **ALIGNMENT DOCUMENT**

**STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS  
CERCLA DOCKET NO. 06-02-06**

**Prepared for:**

**Chevron Environmental Management Company  
and  
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## **1.0     INTRODUCTION**

Conestoga-Rovers & Associates (CRA) and Cardno ENTRIX, on behalf of Chevron Environmental Management Company (CEMC) and Huntsman Petrochemical LLC (Huntsman), submit herein to the United States Environmental Protection Agency (EPA) the Alignment Document for the Star Lake Canal Superfund Site (Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] Docket No. 06-02-06) located in Jefferson County, Texas (Site). The purpose of this Alignment Document is to provide a bridge between the Tier 2 Remedial Investigation (RI) and the Feasibility Study (FS) for the Site. In the Tier 2 RI, risks to benthic invertebrates were quantified on a sample location basis while risks to upper trophic level receptors of concern (ROCs) were determined on a Site-wide basis. During a meeting among EPA, CEMC, Huntsman, CRA, Cardno ENTRIX, Texas Commission on Environmental Quality (TCEQ), and Federal and State Trustees on February 15, 2011, CEMC agreed to prepare a document that would define those areas within the Site that might contribute the most significant amount of risk to upper trophic level receptors instead of referring to risk across the entire Site. This Alignment Document provides definition of ecological risks to these upper trophic level receptors into areas of decision units. These areas were developed using a Thiessen polygon approach. Thiessen polygons are used to mathematically define individual areas around each of a set of points. The boundaries of each of these polygons define areas that are statistically closest to each point relative to all other points. So, if a particular point is found to contribute significantly to risk, then the boundary represented by the polygon surrounding that point would be considered to contribute significantly to that risk. This Alignment Document is intended to define those areas that might be considered drivers of upper trophic level risk, while further focus of the FS will be to determine which areas are driving risk and how the various remediation efforts in any of these areas will influence the overall Site risk posed to upper trophic level receptors.

## **2.0     BACKGROUND AND METHODS**

### **2.1         THIESSEN POLYGONS**

In the Tier 2 RI and Baseline Ecological Risk Assessment (BERA), risk to benthic invertebrates was assessed on a sediment sample basis and risk to upper trophic level ROCs was assessed on a Site-wide basis. In order to establish areas to be considered as decision units in the FS, Thiessen polygons were developed using sediment and soil sample locations (Figures 1 and 2).

Thiessen polygons, also referred to as Voronoi polygons, can be defined as the area surrounding a single point, where the polygon delineates the area of influence from each point in relation to all other points (Oliver and Webster 2007). The boundary lines of each polygon bisect the distance between one point and all other surrounding points. Thiessen polygons have the unique property that each polygon contains only one input point, and any location within a polygon is closer to its associated point than to the point of any other polygon. Thiessen polygons are useful in assigning data to a single point within a larger area and can serve as a tool in decision making regarding evaluation of risk and remedial actions at sites where impacts have been identified (Oliver and Webster 2007).

## **2.2 RISK TO BENTHIC INVERTEBRATES**

### **2.2.1 LINES OF EVIDENCE ANALYSIS**

Four lines of evidence were used in the BERA to evaluate risk to benthic and epibenthic organisms: hazard ratios (Hs), mean effects range median quotients and mean probable effects level quotients (mean ERM-Qs/mean PEL-Qs, respectively), ratio of simultaneous extractable metals to acid volatile sulfides (SEM/AVS), and toxic units (TUs). A preferential line of evidence analysis was used to form a decision regarding whether the sediment sample location would be addressed in the FS or the sediment sample location required no further action. The primary line of evidence in this analysis was the ERM-Q and PEL-Q analysis. These are intended as interpretive benchmarks for evaluating the risks of toxicity posed to benthic invertebrates by constituents of potential ecological concern (COPECs) in sediment. This evaluation provides a means to rank, or prioritize sediment samples based on the probability of amphipod toxicity.

The sediment sample decisions reported in the Final Tier 2 RI Report (CRA and Cardno ENTRIX 2011) were applied to the sediment Thiessen polygons in Figure 3. By showing the benthic risk decisions as Thiessen polygon operable units, remedial alternatives can be evaluated or interpreted on an area basis instead of a point to point basis.

## **2.3 RISK TO UPPER TROPHIC LEVEL RECEPTORS**

Risk to 15 upper trophic level ROCs was evaluated in the Tier 2 RI using exposure models with refined exposure factors. Hazard quotients (HQs) were determined for each receptor's COPEC exposure using the reasonable maximum exposure (RME) concentrations in sediment, soil, surface water, and dietary items, as well as conservative toxicity reference values (TRVs). A  $HQ \leq 1.0$  indicated that risk is acceptable (EPA 1999).

Alternatively, a HQ>1.0 indicated an unacceptable risk and resulted in the decision to address the sample in the FS. The calculated HQs for each COPEC-receptor pair as well as detailed descriptions of the dose equations, exposure concentrations, and exposure factors used in the exposure models are provided in the Final Tier 2 RI Report.

In the Tier 2 RI, three categories of TRVs were used to assess risk to upper trophic level ROCs. No Observable Adverse Effects Level (NOAEL) TRVs represent the exposure concentration at which no toxic effects are observed. The LOAEL-TRV is a less conservative comparison than the NOAEL, and represents the lowest concentration observed that causes adverse effects to a receptor. The Geometric Mean Acceptable Toxicant Concentration (GMATC)-based TRV was also used as a comparison; the GMATC value is the geometric mean of the NOAEL- and LOAEL-based TRVs and is used as a reference value when comparing the toxicities of industrial constituents, polychlorinated biphenyls (PCBs), and pesticides when evaluating risk to ecological receptors (EPA 1999). The HQ's were termed as the NOAEL HQ, GMATC HQ, and LOAEL HQ to reflect the TRV used in the exposure model.

### 2.3.1 PROTECTIVE CONCENTRATION LEVELS

To define those areas that might be considered drivers of upper trophic level risk, sediment and soil protective concentration levels (PCLs) were calculated for the ROCs that were determined to have unacceptable risk from a particular COPEC (defined by a NOAEL, GMATC, or LOAEL HQ>1 in the Tier 2 RI). PCLs were determined using the dose equation method (see Equations 1 and 2) outlined in the Texas Natural Resource Conservation Commission (TNRCC) Guidance for Conducting Risk Assessments at Remediation Sites in Texas (2001). The ecological protective concentration level (PCL) is the concentration of a COPEC within an exposure medium which is protective of the more wide-ranging receptors that may frequent the Site and utilize the less mobile receptors as a food source (TNRCC 2001). The derivation of a PCL requires the HQ = 1, resulting in a total daily dose equal to the TRV (TNRCC 2001).

$$(1) \quad PCL_{se\ dim\ ent} = \frac{TRV \times BW - [(IR_{water} \times C_{water} \times EMF_{water}) + (IR_{soil} \times C_{soil} \times EMF_{soil})]}{[(IR_{food} \times C_{food} \times EMF_{food}) + (IR_{se\ dim\ ent} \times EMF_{se\ dim\ ent})]}$$

$$(2) \quad PCL_{soil} = \frac{TRV \times BW - [(IR_{water} \times C_{water} \times EMF_{water}) + (IR_{se\ dim\ ent} \times C_{se\ dim\ ent} \times EMF_{se\ dim\ ent})]}{[(IR_{food} \times C_{food} \times EMF_{food}) + (IR_{soil} \times EMF_{soil})]}$$

Where:

PCL<sub>sediment</sub> = Protective concentration level in sediment (mg/kg)  
PCL<sub>soil</sub> = Protective concentration level in soil (mg/kg)



TRV	= Toxicity reference value (mg COPEC/kg BW/day)
BW	= Body weight of receptor (kg)
IR <sub>water</sub>	= Ingestion rate of water (L/day)
IR <sub>soil</sub>	= Ingestion rate of soil (kg/day)
IR <sub>sediment</sub>	= Ingestion rate of sediment (kg/day)
IR <sub>food</sub>	= Ingestion rate of food (kg/day)
C <sub>water</sub>	= Concentration in water (mg/L)
C <sub>soil</sub>	= Concentration in soil (mg/kg)
C <sub>sediment</sub>	= Concentration in sediment (mg/kg)
C <sub>food</sub>	= Concentration in food (mg/kg)
EMF <sub>water</sub>	= Exposure modifying factor for water
EMF <sub>soil</sub>	= Exposure modifying factor for soil
EMF <sub>sediment</sub>	= Exposure modifying factor for sediment
EMF <sub>food</sub>	= Exposure modifying factor for food

In the dose equation method, a single media-specific PCL is calculated while COPEC concentrations in other media are held constant. As such, the sediment PCL was calculated as the COPEC concentration in sediment that would result in a HQ = 1 while soil and water COPEC concentrations are held at constant concentrations. Conversely, the soil PCL was calculated as the COPEC concentration in soil that results in a HQ = 1 while sediment and water COPEC concentrations are held at constant concentrations. The PCL term will reflect the NOAEL PCL if the NOAEL TRV was used in Equations 1 and 2, the GMATC PCL if the GMATC TRV was used, and the LOAEL PCL if the LOAEL TRV was used.

At the Site, there are multiple potentially impacted media (sediment, soil, surface water and tissue) that contribute to some portion of the overall ecological risk to ROCs. As mentioned above, the dose equation method for calculating PCLs keeps the other media constituent concentrations constant while determining the media-specific PCL concentration that will produce a HQ=1. For certain receptors, the concentrations of COPECs in both sediment and soil were such that holding soil concentrations steady while trying to calculate sediment PCLs did not allow calculation of a PCL. To best understand the contribution of sediment and to calculate a sediment PCL, the assumption was made that the Jefferson Canal spoil piles might receive some remedy and that soil concentrations in that area would be returned to a value equal to one-half of the detection limit for the various COPECs. Soil concentrations of one-half of the detection limit were used for each COPEC and then those soil concentrations were held constant while evaluating each sediment PCL. Surface water constituent concentrations were held constant at the RME concentration. PCL values were calculated for sediment to attempt to understand those areas that are contributing to this risk value in

sediments. As a conservative measure, surface water constituent concentrations were held at RME concentrations, although it is likely that a decrease in sediment constituent concentrations would also result in a decrease in surface water constituent concentrations. This approach will be modified in the FS to help better understand the contributions of all media and help drive a decision point for remedial efforts. Soil PCLs were calculated by holding sediment and surface water constituent concentrations constant at the RME concentrations. Soil PCLs were only calculated for those receptors with greater than 1% of soil in their diet (raccoon, short-tailed shrew, and American robin) and a HQ>1.

### 2.3.2 SITE-SPECIFIC BIOACCUMULATION FACTORS

A large percentage of the total daily dose for most receptors was due to ingestion of dietary items. Because the constituent concentrations in dietary items were dynamically linked to sediment or soil concentrations, the revised dose equations utilize site-specific bioaccumulation factors (BAFs) to model tissue concentrations given a decrease in soil and sediment constituent concentration. The BAF value represents the accumulation of constituents in tissue of dietary items from exposure to affected environmental media (TNRCC 2001) and provides a quick and easy way to estimate tissue concentration based on exposures to contaminated media (NFESC 2003). This value is calculated as the ratio of the concentration of a constituent in an organism's tissue to the concentration in an environmental medium to which the organism is exposed (see Equation 3). The BAF was calculated for each receptor and then used in place of the RME concentrations of the dietary items that were used in the Tier 2 RI. As the sediment or soil concentration is changed to calculate the PCL, the equation automatically calculates the predicted value in tissues and utilizes that concentration in the model instead of a measured concentration.

$$(3) \quad C_{food} = C_{medium} \times BAF_{food}$$

Where:

$C_{food}$	= Concentration of constituent in $j^{th}$ dietary item (mg/kg wet weight)
$C_{medium}$	= Concentration of constituent in the environmental medium (mg/kg wet weight)
$BAF_{food}$	= Bioaccumulation factor of constituent in $j^{th}$ dietary item in environmental medium

For each measured dietary item at the Site, BAFs were calculated by dividing each tissue sample COPEC concentration (mg/kg wet weight) by each sediment or soil sample

COPEC concentration (mg/kg wet weight). Fish, insects, crabs, amphibians, and vegetation were assumed to receive the majority of their COPEC exposure from sediment. Therefore, BAFs for those dietary items were multiplied by sediment sample concentrations. Worms were assumed to receive the majority of their COPEC exposure from soil, so worm BAFs were multiplied by soil sample concentrations.

Only samples that were collected in areas the dietary item could potentially be found at the Site were used in the BAF calculations. For example, the lead concentration in each small fish tissue sample was divided by the lead concentration in each sediment sample location in which a small fish could potentially forage. Burkhard (2009) reports the most important factor in measuring bioaccumulation from sediments is that the sediment samples reflect the foraging area of the organism. To estimate the foraging areas of the dietary items used in the exposure models, a visual inspection was conducted on an infrared aerial of the Site taken in October 2009 and compared with information from field personnel that have conducted investigations at the Site. Saltwater fish and blue crabs were collected as dietary items at the Site; therefore, only saltwater sediment sample locations that could provide enough water for a small fish or crab to inhabit were included in the foraging area samples for those dietary items. Foraging areas for amphibians and insects included all freshwater and saltwater sediment sample locations. Alligator weed was collected in the saltwater areas of the Site and used for the vegetation samples in the exposure models. Sediment sample locations where vegetation could be found were determined by visual inspection of the presence of vegetation at each saltwater sediment sample location on the infrared aerial. Worms were collected in the Jefferson Canal spoil pile therefore all soil samples were used as the foraging area samples for the worm BAF calculations. See Table 1 for sediment and soil samples used as the foraging areas of the dietary items.

Calculating BAFs using each tissue sample concentration with each sediment/soil sample concentration in the foraging areas resulted in a range of BAFs for a particular dietary item. The Site-specific BAF to be used in the PCL dose equation was chosen according to the statistical distribution of those BAF values. For each dietary item, BAF values and log transformed BAF values were plotted on probability plots (SigmaStat) to determine whether the data are likely to have come from a normal or lognormal distribution. This can be done by evaluating whether a straight line fits the plotted points (Gilbert 1987). If the log transformed values appeared more linear than the untransformed values on the probability plot, then the geometric mean of the BAF values was chosen as it is a more accurate indication of the central tendency of the average for a lognormal distribution. If the log transformed BAF values did not appear more linear than the untransformed values then the arithmetic mean was chosen.

Site-specific BAFs for all dietary items ingested by receptors with a HQ>1 are provided in Table 2.

PCL dose equations were modified by replacing the measured tissue concentrations in dietary items ( $C_{food}$  in Equations 1 and 2) with the sum of predicted tissue concentrations in dietary items (the Site-specific BAF multiplied by the media concentration) (see Equations 4 and 5).

$$(4) \quad PCL_{se\ dim\ ent} = \frac{TRV \times BW - [(IR_{water} \times C_{water} \times EMF_{water}) + (IR_{soil} \times C_{soil} \times EMF_{soil})]}{[(IR_{food} \times (\sum (BAF_{food} \times C_{medium}))) \times EMF_{food}] + (IR_{se\ dim\ ent} \times EMF_{se\ dim\ ent})}$$

$$(5) \quad PCL_{soil} = \frac{TRV \times BW - [(IR_{water} \times C_{water} \times EMF_{water}) + (IR_{se\ dim\ ent} \times C_{se\ dim\ ent} \times EMF_{se\ dim\ ent})]}{[(IR_{food} \times (\sum (BAF_{food} \times C_{medium}))) \times EMF_{food}] + (IR_{soil} \times EMF_{soil})}$$

### 2.3.3 PCLs APPLIED TO THIESSEN POLYGONS

TCEQ (2005) states that PCLs may not need to be determined for a COPEC that has a NOAEL HQ>1 and a LOAEL HQ<1 because any potential media remediation would be to a concentration level that is bounded by the upper and lower effect levels. TCEQ (2006) further recommends, as a default, using the average between the NOAEL-based and LOAEL-based PCLs for a COPEC in a specific medium, provided the NOAEL and LOAEL do not differ more than a factor of ten. An exception to using the average of the NOAEL and LOAEL PCLs is needed when a threatened/endangered (T&E) species or a surrogate for a T&E species is at risk at the Site (TCEQ 2005). In this case, a NOAEL-based PCL should be used because it is not appropriate to remediate to a concentration level that is likely to cause any adverse effects to T&E receptors (TCEQ 2006).

For each COPEC in which there was unacceptable risk posed to an ROC (as determined by a GMATC HQ>1 or a NOAEL HQ>1 for T&E species), the sediment and soil PCLs for each ROC were compared to the COPEC concentrations in sediment and soil samples, respectively. Thiessen polygon maps of the Site were created to show the number of ROCs that had a sediment PCL exceedance at each sediment sample polygon and the number of ROCs that had a soil PCL exceedance at each soil sample polygon. GMATC PCLs were used for all receptors except for the T&E species (white-faced ibis, wood stork, and painted turtle as surrogate for alligator snapping turtle) in which the NOAEL PCL was used to determine the PCL exceedances. Soil sample (Jefferson Canal Spoil Pile) Thiessen polygons are shown on the sediment maps as having no PCL exceedances

because the soil concentrations were set to ½ the detection limits while sediment PCLs were generated.

### **3.0 RESULTS**

#### **3.1 BENTHIC INVERTEBRATES**

Risk to benthic invertebrates was defined in the Tier 2 RI; however, Figure 3 summarizes those locations (defined by Thiessen Polygons) within the Site boundaries that either require no further action, or will be addressed in the FS. This information will be utilized in the FS in conjunction with the polygons and data prepared for the upper trophic level receptors to better define those areas significantly contributing to Site risk and define remedial alternatives suitable for the Site.

#### **3.2 UPPER TROPHIC LEVEL ROCS**

##### **3.2.1 PCLs**

Sediment PCLs were calculated for all ROCS with a previously determined NOAEL, GMATC, or LOAEL HQ>1, and are shown in Table 3. Soil PCLs were calculated for all ROCs with a NOAEL, GMATC, or LOAEL HQ>1 and greater than 1% of soil in their diet (Table 4.).

PCLs were not calculated when the HQ≤1 for the different effect levels. In several cases, PCLs could not be determined for a specific media due to the proportion of other media and diet driving the risk. In addition, because the BAF is determined as an average across the Site, replacing the dietary item RME concentration with the BAF-derived dietary item concentration resulted in some changes in the HQ. However, PCLs were calculated for all receptors with a HQ>1 when RME concentrations were used in the exposure models.

A number of the hexachlorobenzene PCLs were not calculated due to a re-evaluation of the risk levels using an empirically-derived mollusk BAF compared to the BAF value used in the Tier 2 RI. The mollusk BAF used for the Tier 2 RI was based on a recommended Bioconcentration factor (BCF) value from USEPA (1999) multiplied by the food chain multiplier (FCM). The recommended sediment-to-benthic invertebrate BCF was calculated using a regression equation ( $\log \text{BCF} = 0.819 \times \log K_{ow} - 1.146$ ) due to the lack of available empirical data (USEPA 1999). Upon further review of the literature, a field-measured sediment-to-mollusk BAF was found in a study by Boese et al (1995).

This study measured BAFs in the marine deposit-feeding clam, *Macoma nasuta*, exposed to hexachlorobenzene in sediments with varying organic carbon contents. As stated in USEPA (1995), a measured baseline BAF for an organic or inorganic chemical derived from a field study of acceptable quality is the most preferred method for deriving baseline BAFs. Conversely, deriving a baseline BAF from a predicted baseline BAF for an organic chemical derived from a  $K_{ow}$  of acceptable quality and a FCM is the least preferred method. Therefore, in this Alignment Document, exposure models used the field-measured mollusk BAF for hexachlorobenzene to compare the HQs against the HQ calculated with the nonempirically-derived BAF used in the Tier 2 RI BERA. Using the field-measured mollusk BAF (15.2) from Boese et al (1995), the short-tailed shrew, raccoon, mallard, bullfrog, and painted turtle that had previously shown unacceptable risk from exposure to hexachlorobenzene in the Tier 2 RI were found to have HQs <1; therefore, calculations of hexachlorobenzene PCLs were not needed for those ROCs.

### **3.2.2      PCL EXCEEDANCES**

The sediment GMATC PCLs for ROCs with GMATC HQ>1 (or the NOAEL PCLs for T&E ROCs with NOAEL HQ>1) were compared to sediment COPEC concentrations for identification of PCL exceedances. Figures 4 through 20 show the number of ROCs (out of the 15 total ROCs at the Site) with PCL exceedances at each sediment sample location. The soil sample Thiessen polygons are shown to have no exceedances because the soil concentrations were set at  $\frac{1}{2}$  detection limits for calculation of the sediment PCLs. Tables are provided to accompany the sediment maps (Tables 5 through 21); these tables show which ROCs had PCL exceedances for each COPEC and the sediment sample locations in which the exceedance occurred. A large number of sediment samples analyzed for Chromium VI concentrations were rejected during the analytical tests. PCL exceedances for these rejected sediment samples could not be determined (Figure 15 and Table 16).

The soil GMATC PCLs for ROCs with GMATC HQ>1 (or the NOAEL PCLs for T&E ROCs with NOAEL HQ>1) were compared to soil COPEC concentrations for identification of PCL exceedances. Figures 21 through 27 show the number of ROCs (out of the 15 total ROCs at the Site) with PCL exceedances at each soil sample location. The sediment sample Thiessen polygons are not shown in these figures because the sediment concentrations were not altered from the Site RME concentrations for the soil PCL calculations. Tables are provided to accompany the soil maps (Tables 22 through 28); these tables show which ROCs had PCL exceedances for each COPEC and the soil sample locations in which the exceedance occurred.

To try and provide a general summary, maps were prepared (Figure 28 and 29) in which each Thiessen polygon (both sediment and soil) shows the total number of COPECs for which any PCL was exceeded for any of the ROCs. These maps demonstrate those areas around the Site where the highest number of COPECs had concentrations that exceeded a PCL for any receptor. These data will be further used in the FS to help us determine those areas in which remedial efforts might be focused.

## **4.0 DISCUSSION**

### **4.1 CHOOSING THE PCL FOR TARGET REMEDIATION LEVELS**

While TCEQ (2006) has developed some guidelines to follow in determining the most appropriate PCL, the TRRP rule is intentionally silent on how to select a comparative ecological PCL that is bounded by the NOAEL and LOAEL to allow the person the flexibility of making this determination. For example, situations where only conservative exposure assumptions have been used will support the use of a LOAEL-based PCL. Additionally, if a combination of less conservative and conservative assumptions have been used, it may be appropriate to use a PCL value that is bounded by the upper and lower effect levels but is biased toward the LOAEL bound (TCEQ 2006). An exception to using the average of the NOAEL and LOAEL-based PCLs can also be made in some cases where there is TRV uncertainty. Since PCL exceedances were determined using the GMATC PCL or NOAEL PCL for T&E ROCs, the PCLs provided in this Alignment Document should be treated as preliminary PCLs. The GMATC and NOAEL PCL exceedances aid in identifying areas potentially driving risk to upper trophic level ROCs but these PCLs require further evaluation of the assumptions built into the calculations prior to using these concentrations as remediation goals.

Several of the ROCs had NOAEL and LOAEL PCLs that differed by more than a factor of ten. As noted earlier, TCEQ (2006) does not recommend a default PCL that is the average of the NOAEL and LOAEL when this situation occurs. Further evaluation will be needed in the FS to determine the most appropriate PCL based on TRV uncertainty and conservatism for the following: short-tailed shrew exposed to total PAH in sediments, spotted sandpiper exposed to antimony in sediments, American robin exposed to total chromium and vanadium in soil, and raccoon exposed to manganese and vanadium in soil.

## 4.2 USING PRELIMINARY PCLS TO DETERMINE BEST REMEDIAL ALTERNATIVES

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In the FS, further evaluations will be conducted to determine the contributions of the various soil and sediment sample areas to overall Site risks. This will guide the development of remedial action alternatives that will focus on remediation that could be implemented at specific media sample locations resulting in an overall reduction of ROC COPEC exposure. The evaluation will not look at one media over the other, but at a more holistic review of all media sample locations and their individual contributions to ecological risk.

Areas with PCL exceedances will be assessed for their individual contributions to risk by comparing the magnitudes of PCL exceedances among samples, thus identifying hot spots for potential remediation in both sediment and soil. These hot spot locations will be identified by calculating a ratio that reflects the degree of PCL exceedance at each sample location then summing these ratios for all COPECs at that location. The hot spots within both soil and sediment will be evaluated as part of a sensitivity analysis to determine the best combination of remedial actions at sediment and soil locations that most efficiently achieves the goal of minimizing future ecological risk at the Site. As part of the sensitivity analysis, RMEs will be re-calculated based on remediation at the selected locations for each remedial action alternative. These RMEs will be used in the exposure models, along with the use of BAFs, to evaluate which of the preliminary remedial action alternatives will affect the concentrations in prey items and ROC exposure and ultimately affect ecological risk to receptors utilizing the Site. These modified models will help provide recommendations for which remedy most efficiently results in the desired outcome.

## 5.0 REFERENCES

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- U.S. Environmental Protection Agency (USEPA). 1995. Great Lakes Water Quality Initiative Technical Support Document for the Procedure to Determine Bioaccumulation Factors. EPA-820-B-95-005. Office of Water. March.
- U.S. Environmental Protection Agency (USEPA). 1999. Solid Waste and Emergency Response (5305W), Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities, Volume 2, Appendix A: chemical-specific data, Appendix C: Media-to-Receptor Bioconcentration Factors (BCFs); and Appendix d: Bioconcentration Factors (BCFs) for Wildlife Measurement Receptors, USEPA August 1999.

## FIGURES





Figure 1  
 SEDIMENT SAMPLE LOCATIONS IN THIESSEN POLYGONS  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
 Data provided by Cardno Entrix, Houston, Texas.





RE: August 2009 Gulf Coast Aerial Mapping Photograph

Figure 2  
 SOIL SAMPLE LOCATIONS IN THIESSEN POLYGONS  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*





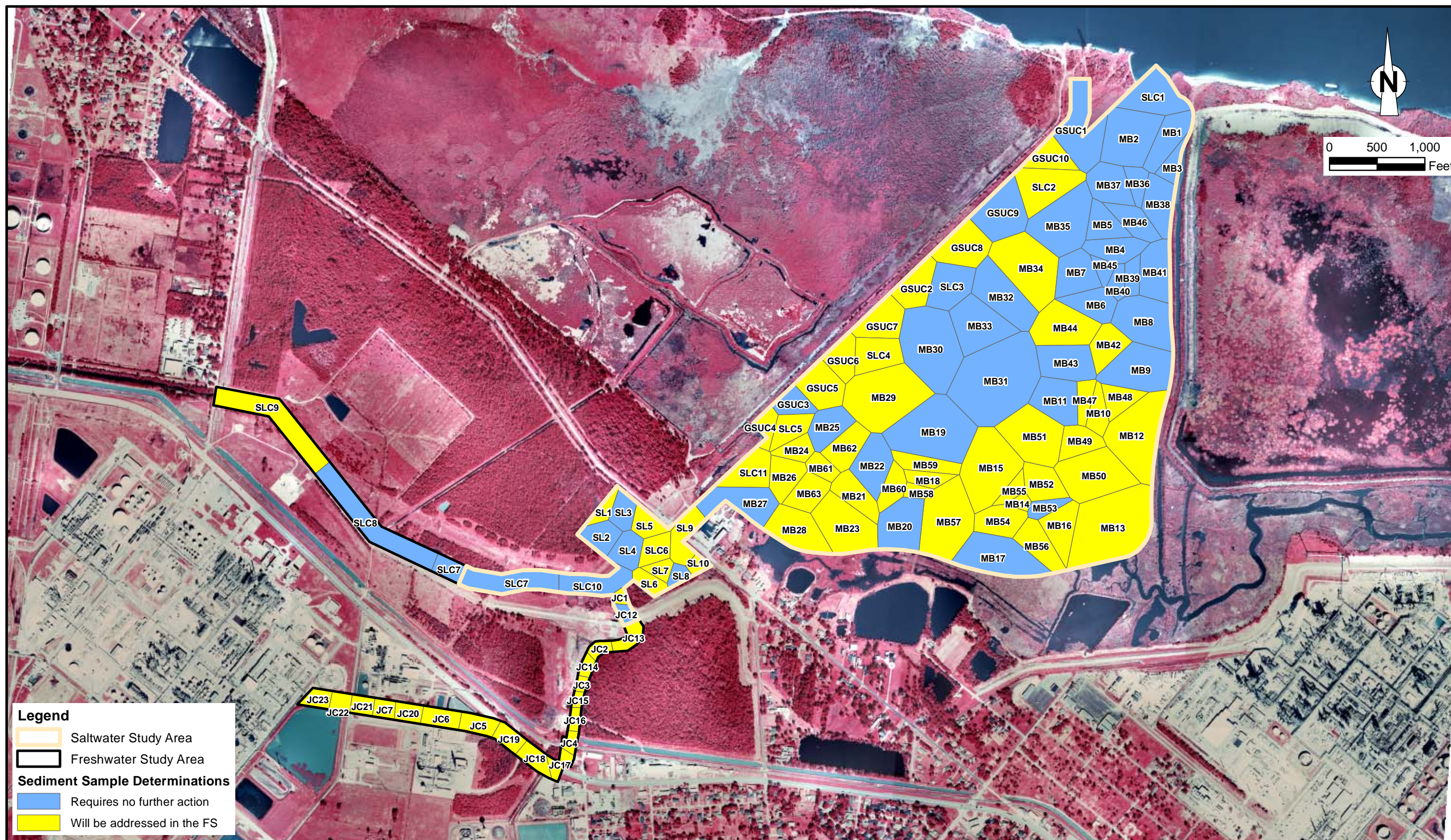


Figure 3  
 BENTHIC INVERTEBRATE RISK MANAGEMENT DECISIONS  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



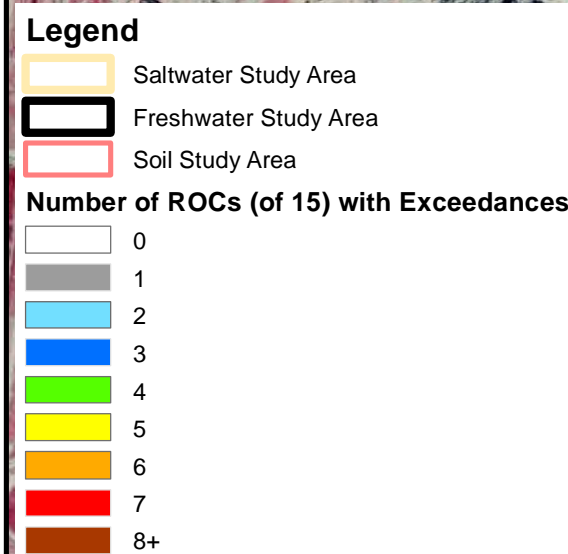
RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
 Data provided by Cardno Entrix, Houston, Texas.



# CARBON DISULFIDE



0 500 1,000  
Feet



Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 4  
NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
CARBON DISULFIDE PCL EXCEEDANCES IN SEDIMENT  
STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
Data provided by Cardno Entrix, Houston, Texas.



# ETHYLBENZENE



0 500 1,000  
Feet

## Legend

- Saltwater Study Area
- Freshwater Study Area
- Soil Study Area

## Number of ROCs (of 15) with Exceedances

- |  |    |
|--|----|
|  | 0  |
|  | 1  |
|  | 2  |
|  | 3  |
|  | 4  |
|  | 5  |
|  | 6  |
|  | 7  |
|  | 8+ |

Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 5  
NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
ETHYLBENZENE PCL EXCEEDANCES IN SEDIMENT  
STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*



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Data provided by Cardno Entrix, Houston, Texas.



# DIBENZOFURAN



Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

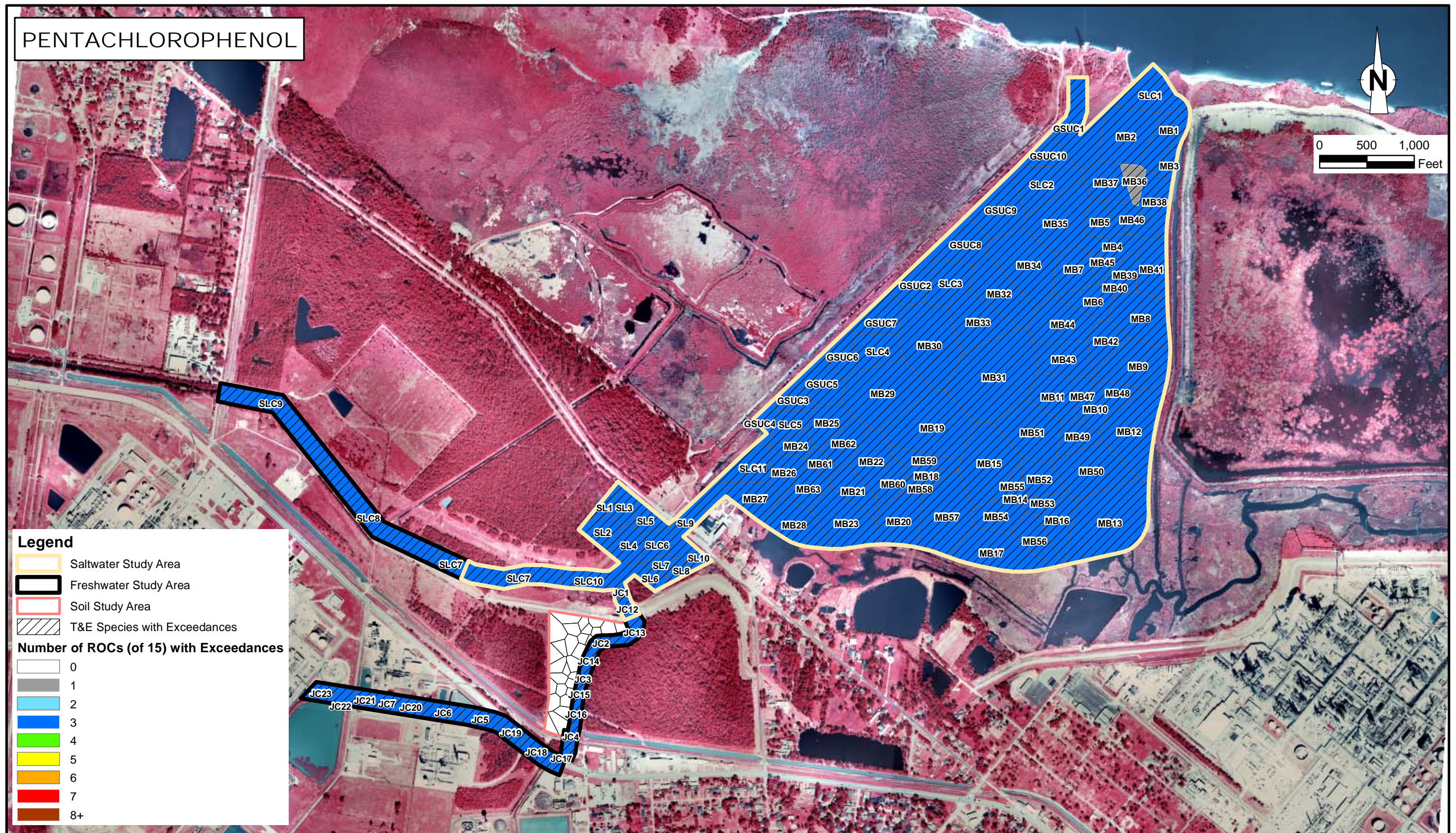
Figure 6  
NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
DIBENZOFURAN PCL EXCEEDANCES IN SEDIMENT  
STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*



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Data provided by Cardno Entrix, Houston, Texas.



# PENTACHLOROPHENOL



Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 7  
NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
PENTACHLOROPHENOL PCL EXCEEDANCES IN SEDIMENT  
STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*



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Data provided by Cardno Entrix, Houston, Texas.



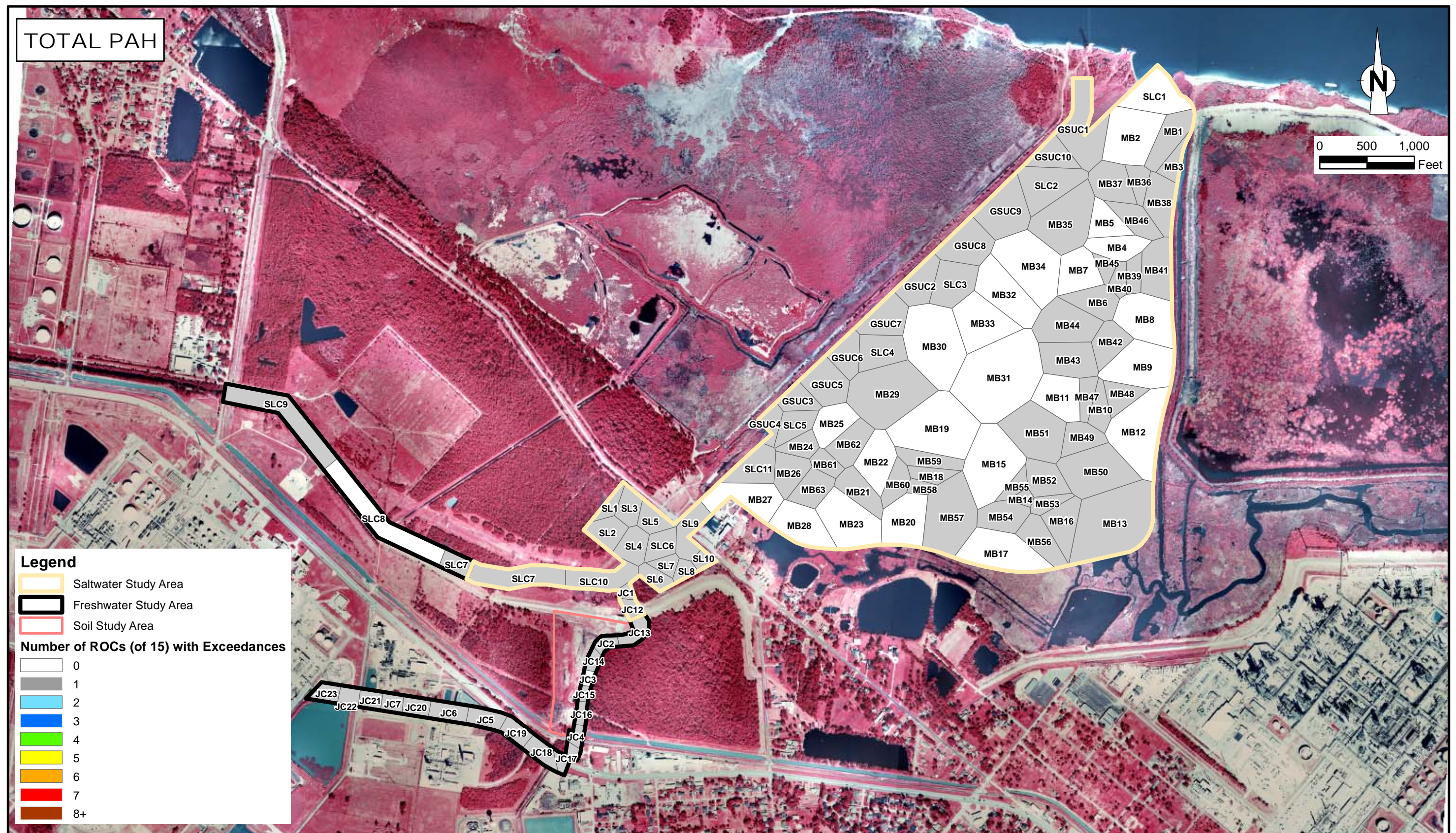


Figure 8  
NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
TOTAL PAH PCL EXCEEDANCES IN SEDIMENT  
STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*



# ENDOSULFAN II



Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 9  
NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
ENDOSULFAN II PCL EXCEEDANCES IN SEDIMENT  
STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
Data provided by Cardno Entrix, Houston, Texas.





Figure 10  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 ALUMINUM PCL EXCEEDANCES IN SEDIMENT  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



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 Data provided by Cardno Entrix, Houston, Texas.





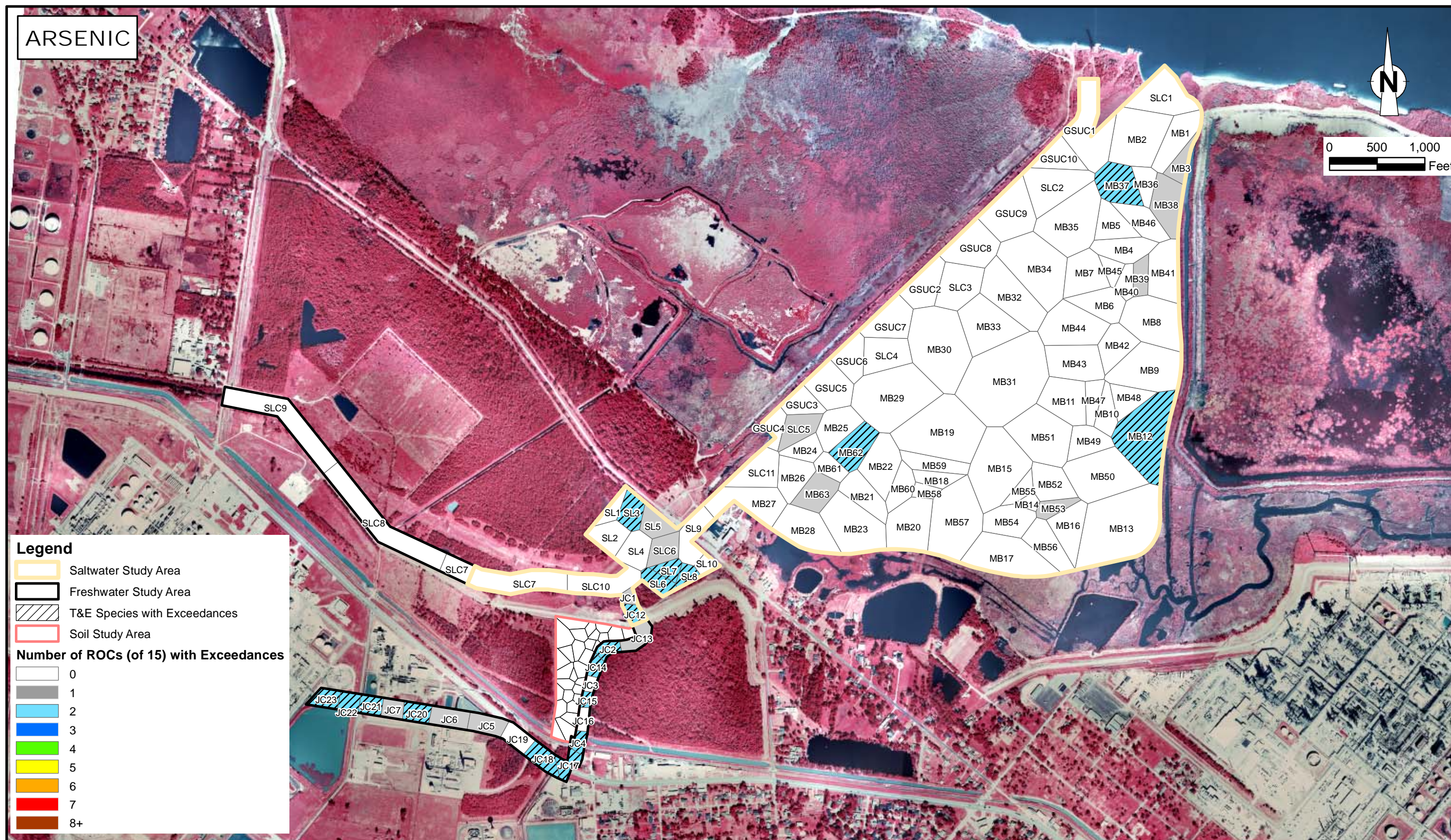
Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
Data provided by Cardno Entrix, Houston, Texas.

Figure 11  
NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
ANTIMONY PCL EXCEEDANCES IN SEDIMENT  
STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*





Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
 Data provided by Cardno Entrix, Houston, Texas.



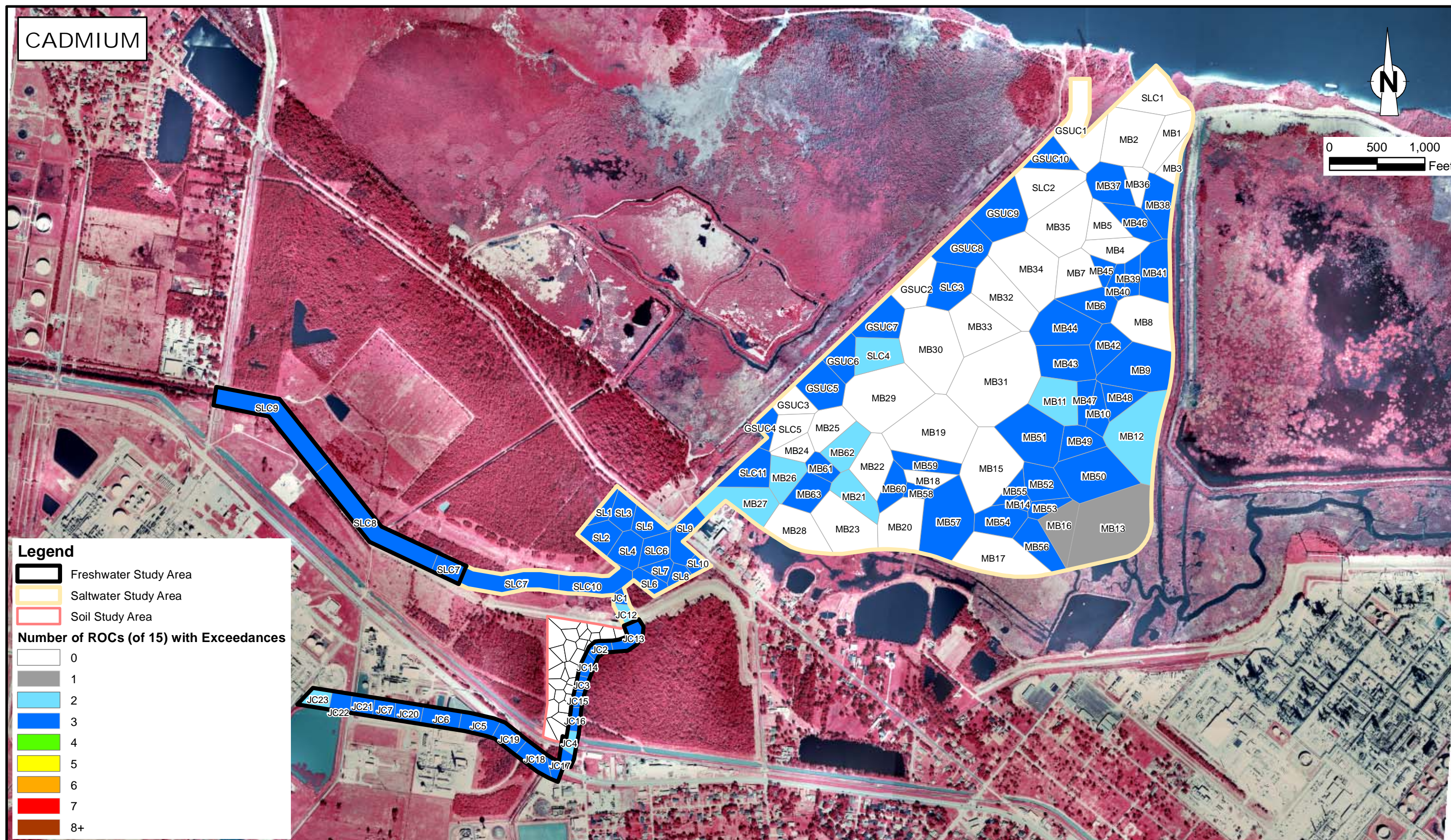
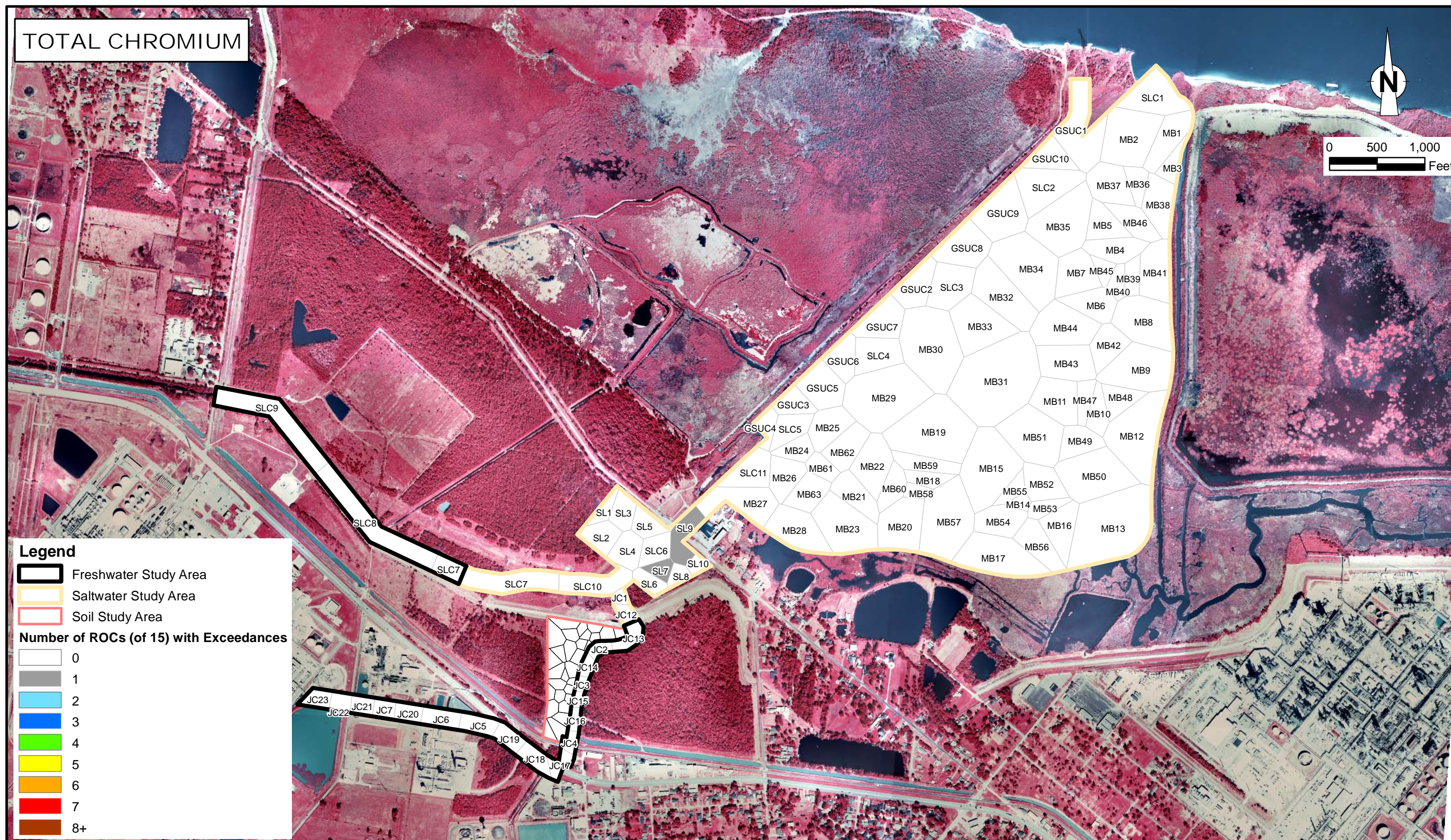


Figure 13  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 CADMIUM PCL EXCEEDANCES IN SEDIMENT  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
 Data provided by Cardno Entrix, Houston, Texas.





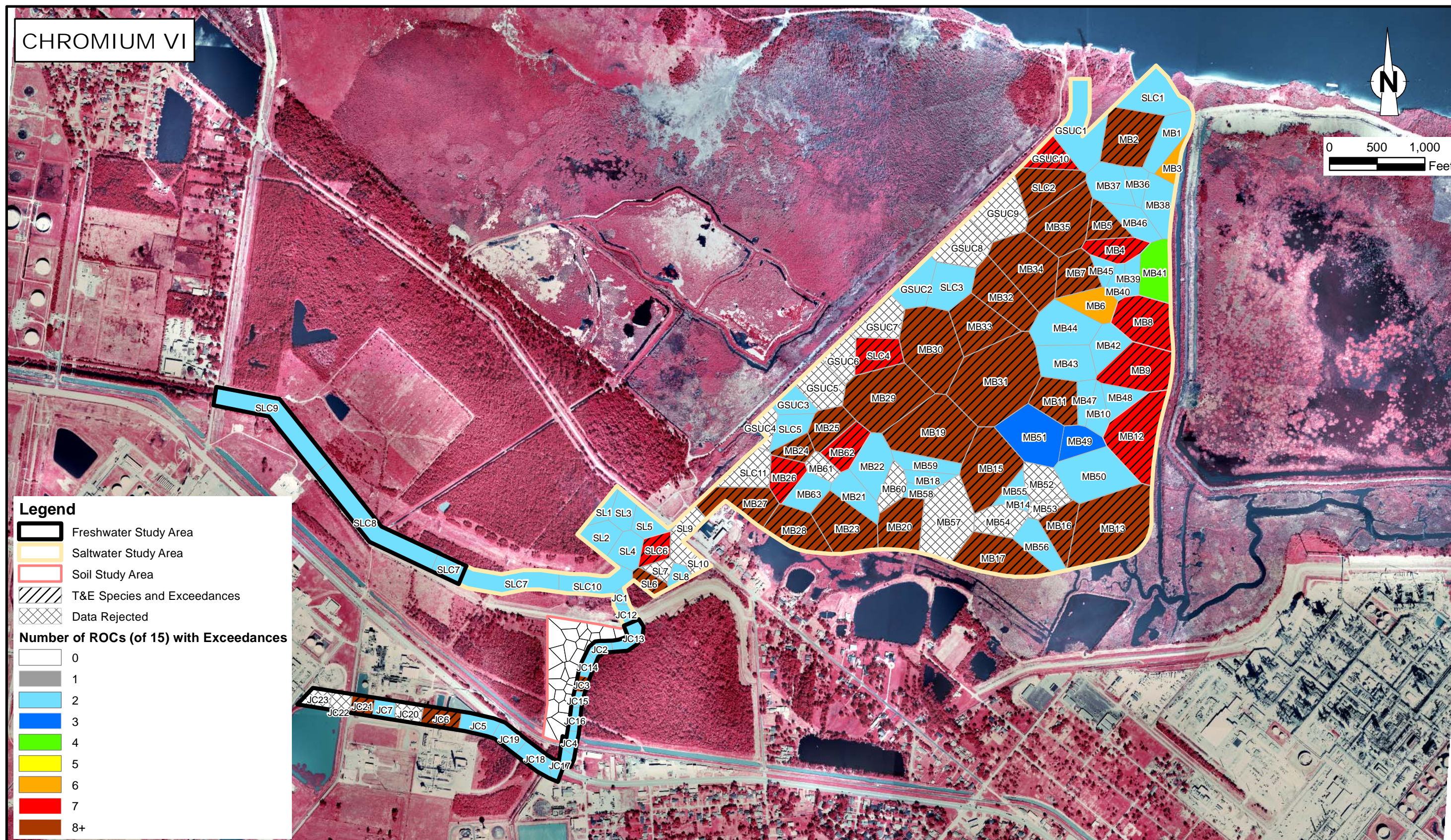
Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 14  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 TOTAL CHROMIUM PCL EXCEEDANCES IN SEDIMENT  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



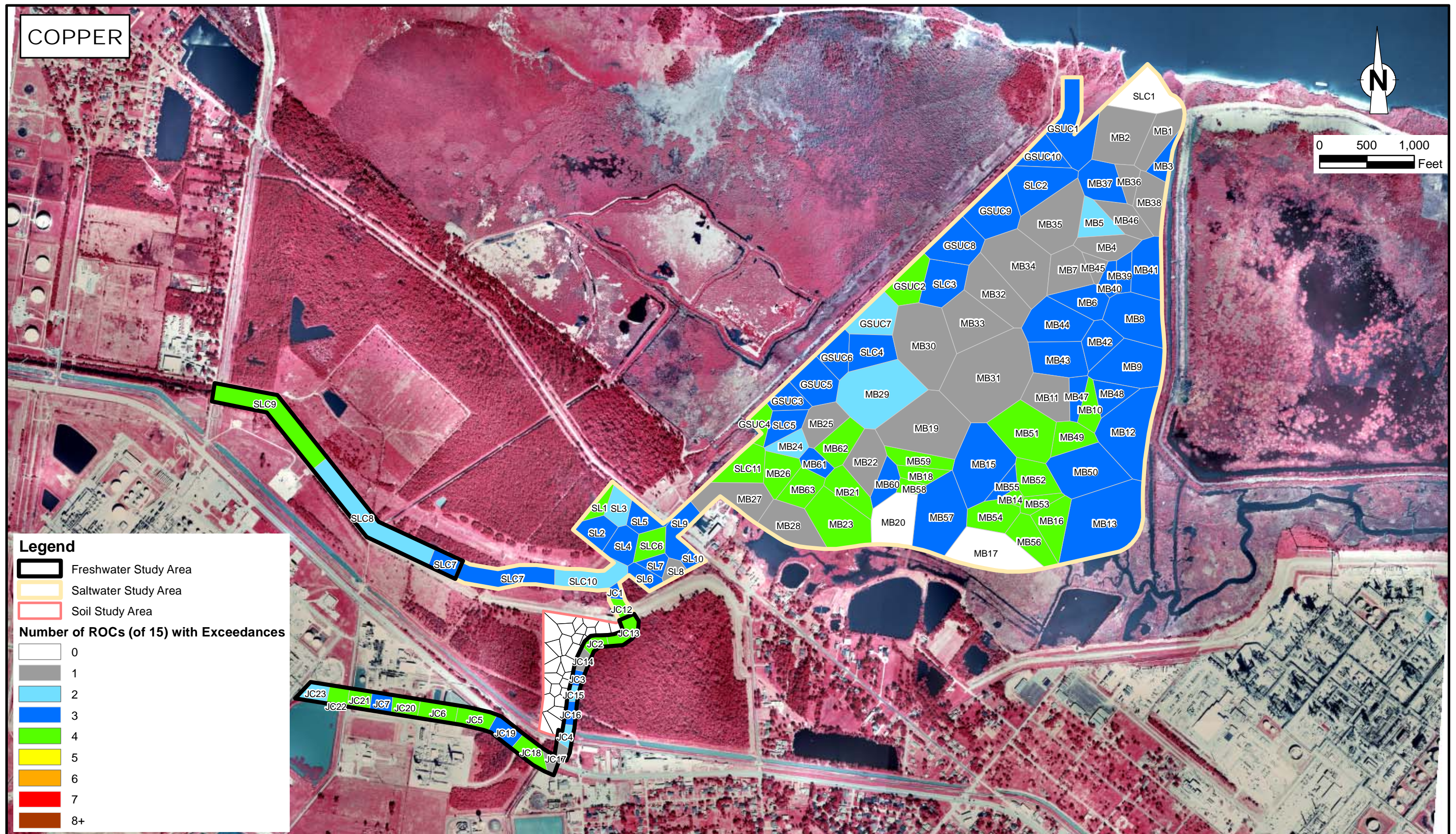
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 Data provided by Cardno Entrix, Houston, Texas.





Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAAEL PCLs.





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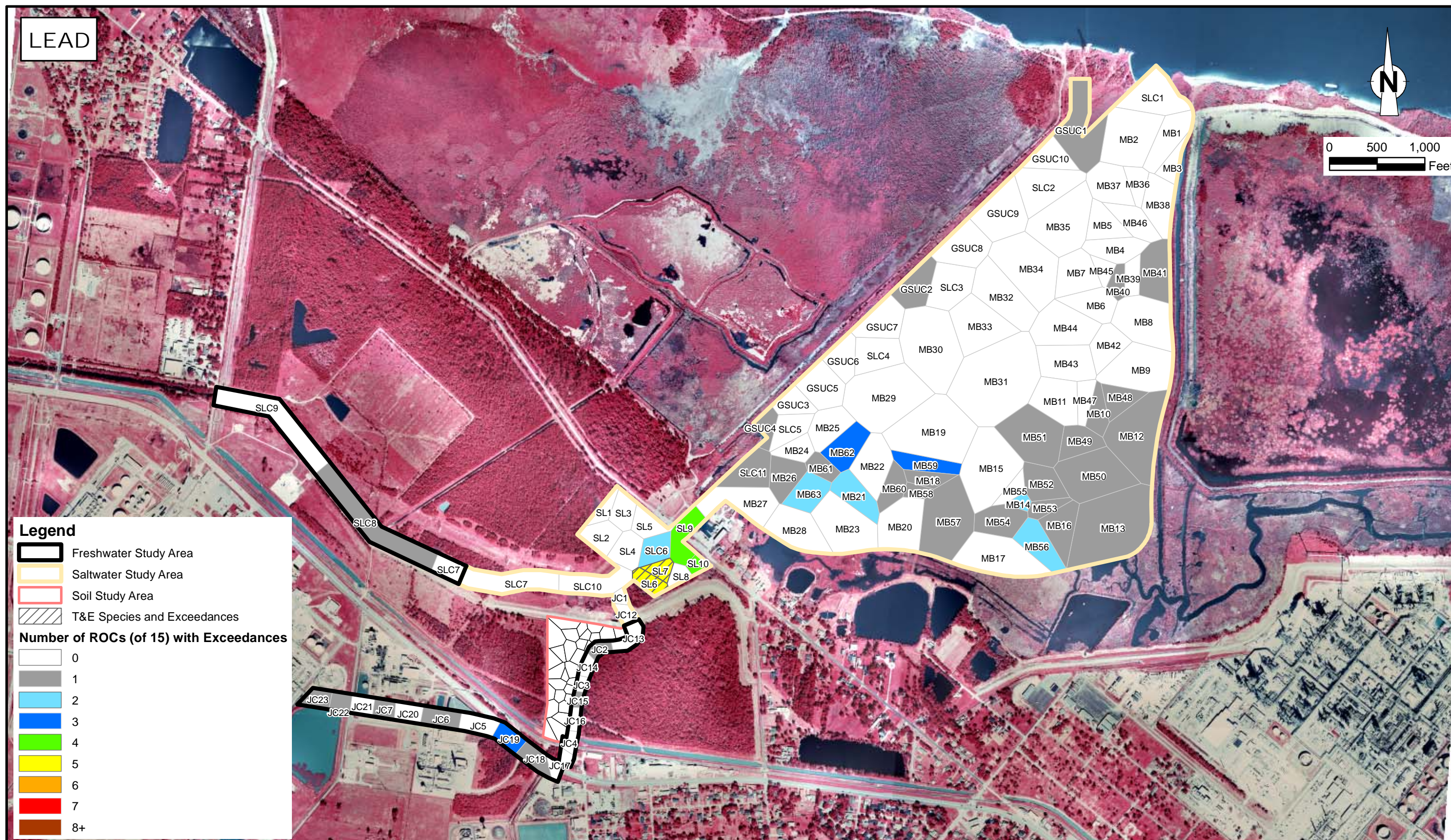


Figure 17  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 LEAD PCL EXCEEDANCES IN SEDIMENT  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



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 Data provided by Cardno Entrix, Houston, Texas.



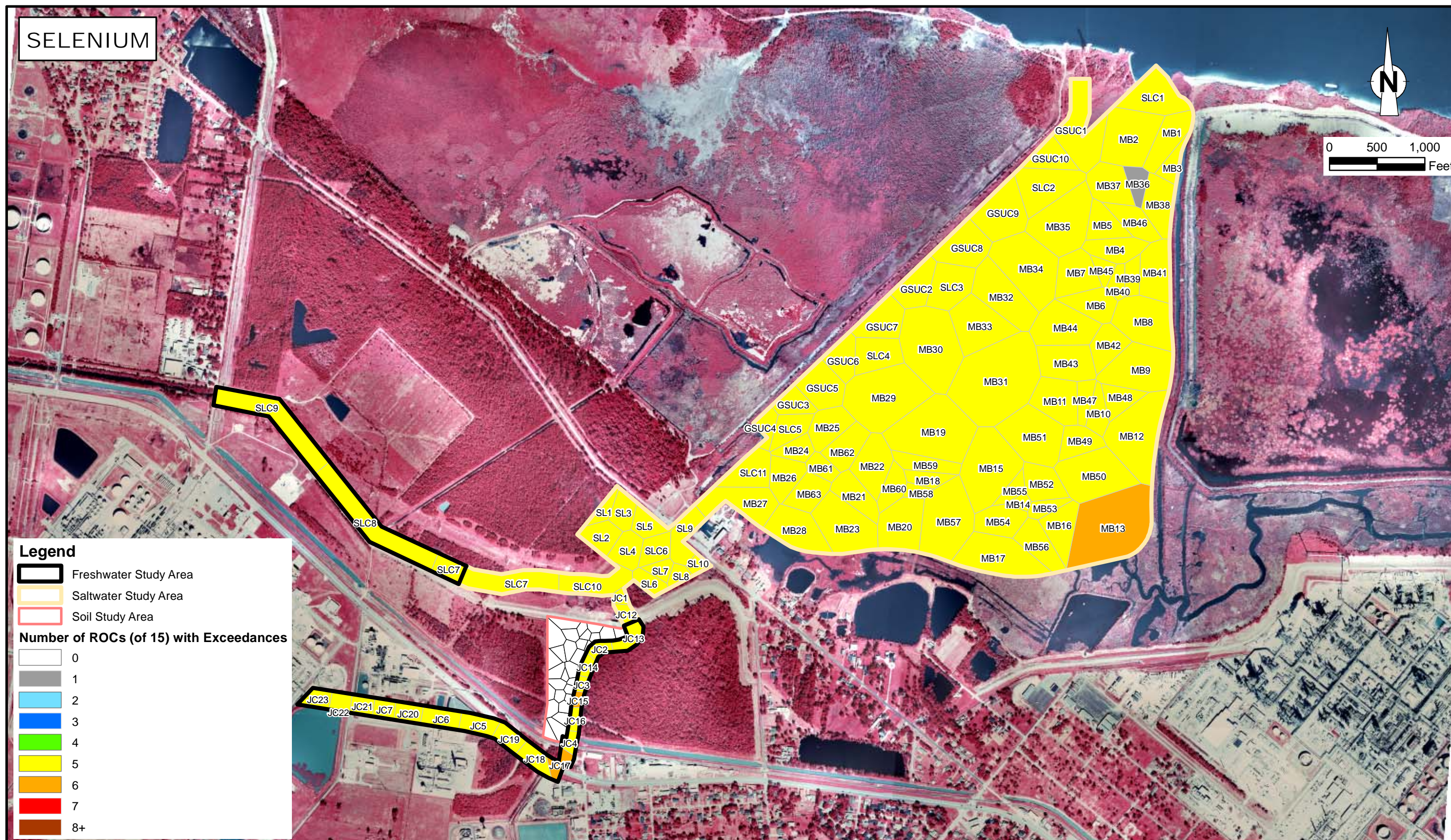


Figure 18  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 MANGANESE PCL EXCEEDANCES IN SEDIMENT  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



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 Data provided by Cardno Entrix, Houston, Texas.





Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 19  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 SELENIUM PCL EXCEEDANCES IN SEDIMENT  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



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 Data provided by Cardno Entrix, Houston, Texas.



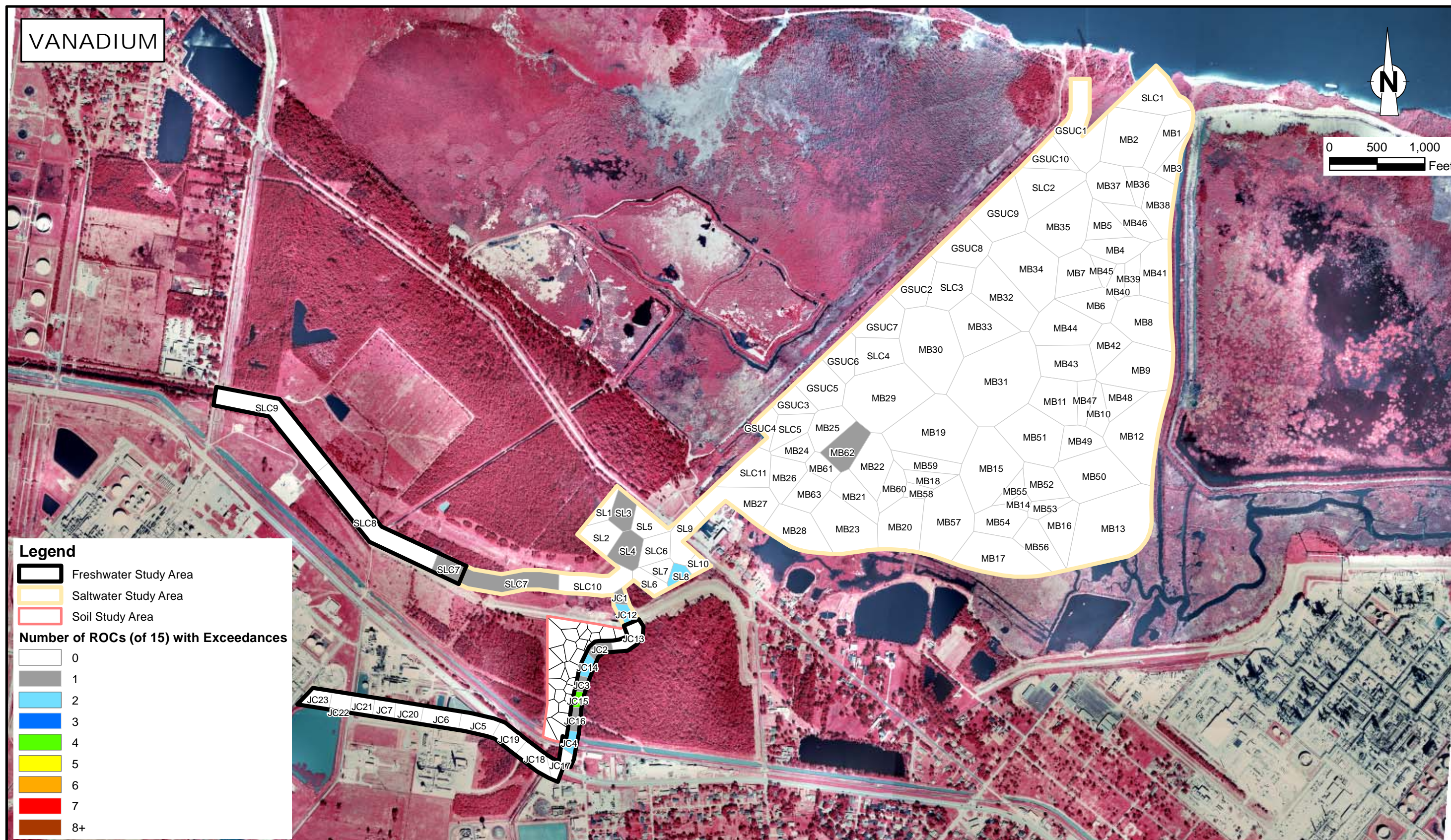


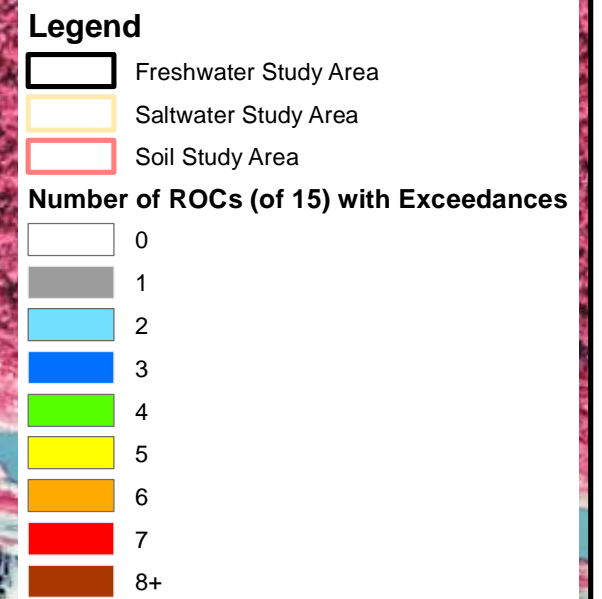
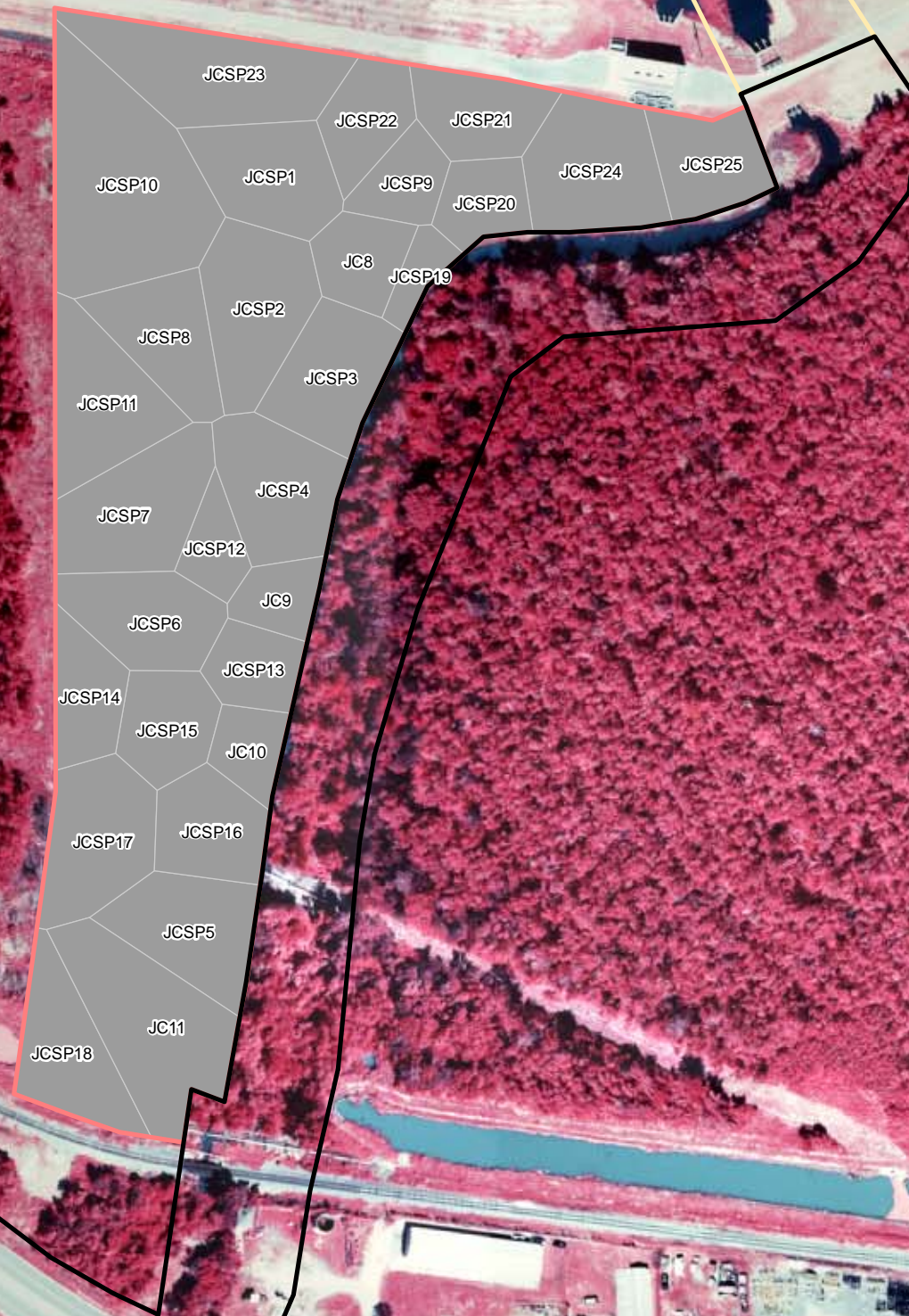
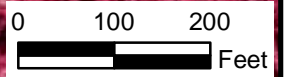
Figure 20  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 VANADIUM PCL EXCEEDANCES IN SEDIMENT  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
 Data provided by Cardno Entrix, Houston, Texas.



ALUMINUM



Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 21  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 ALUMINUM PCL EXCEEDANCES IN SOIL  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



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# CADMIUM

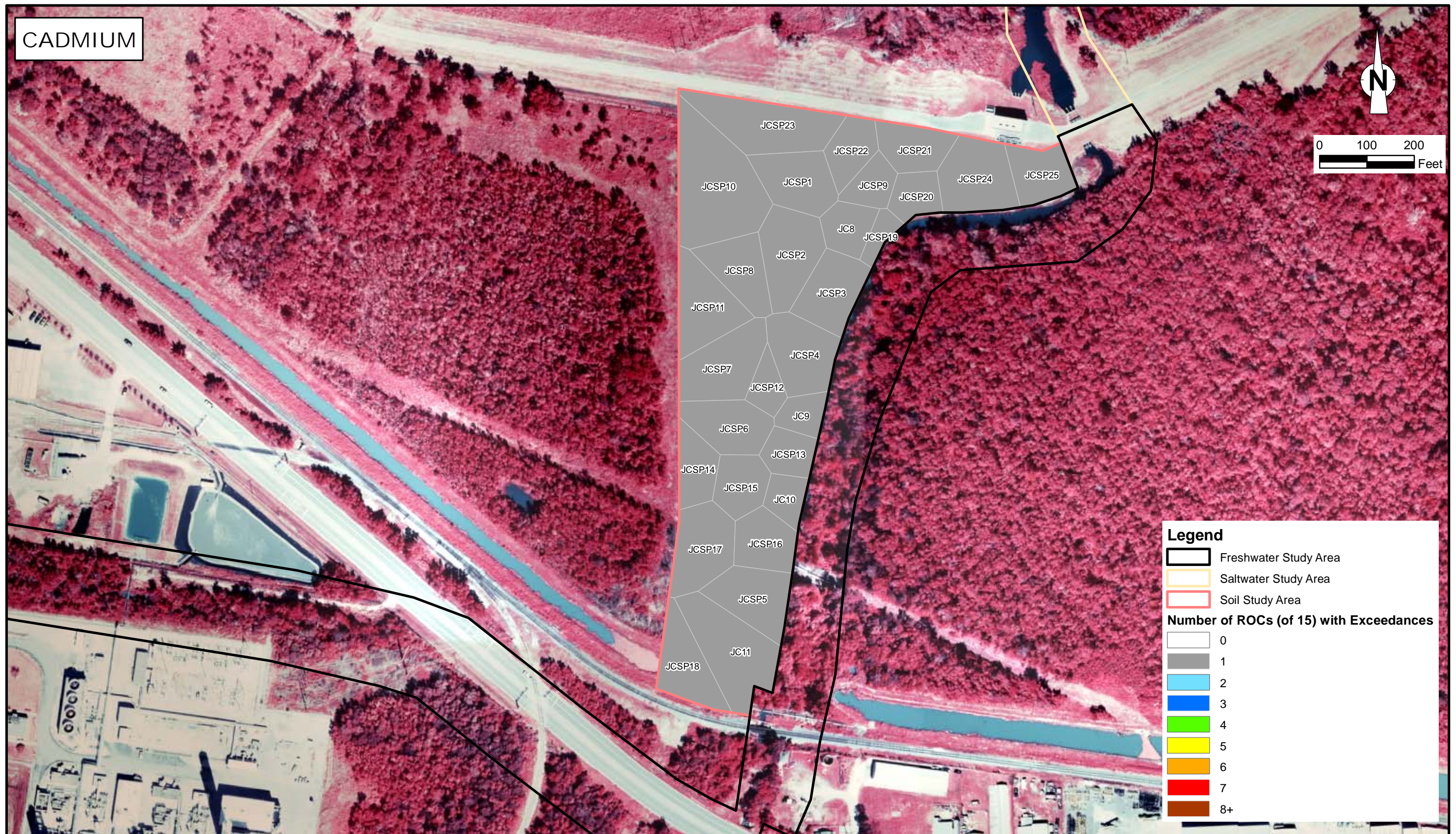


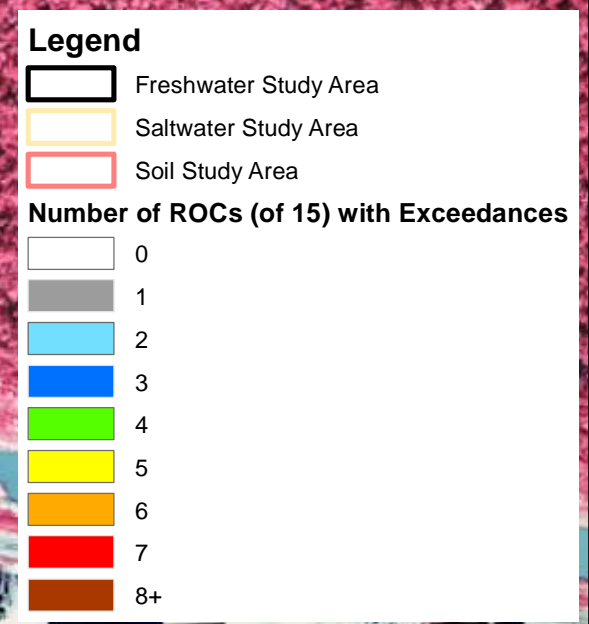
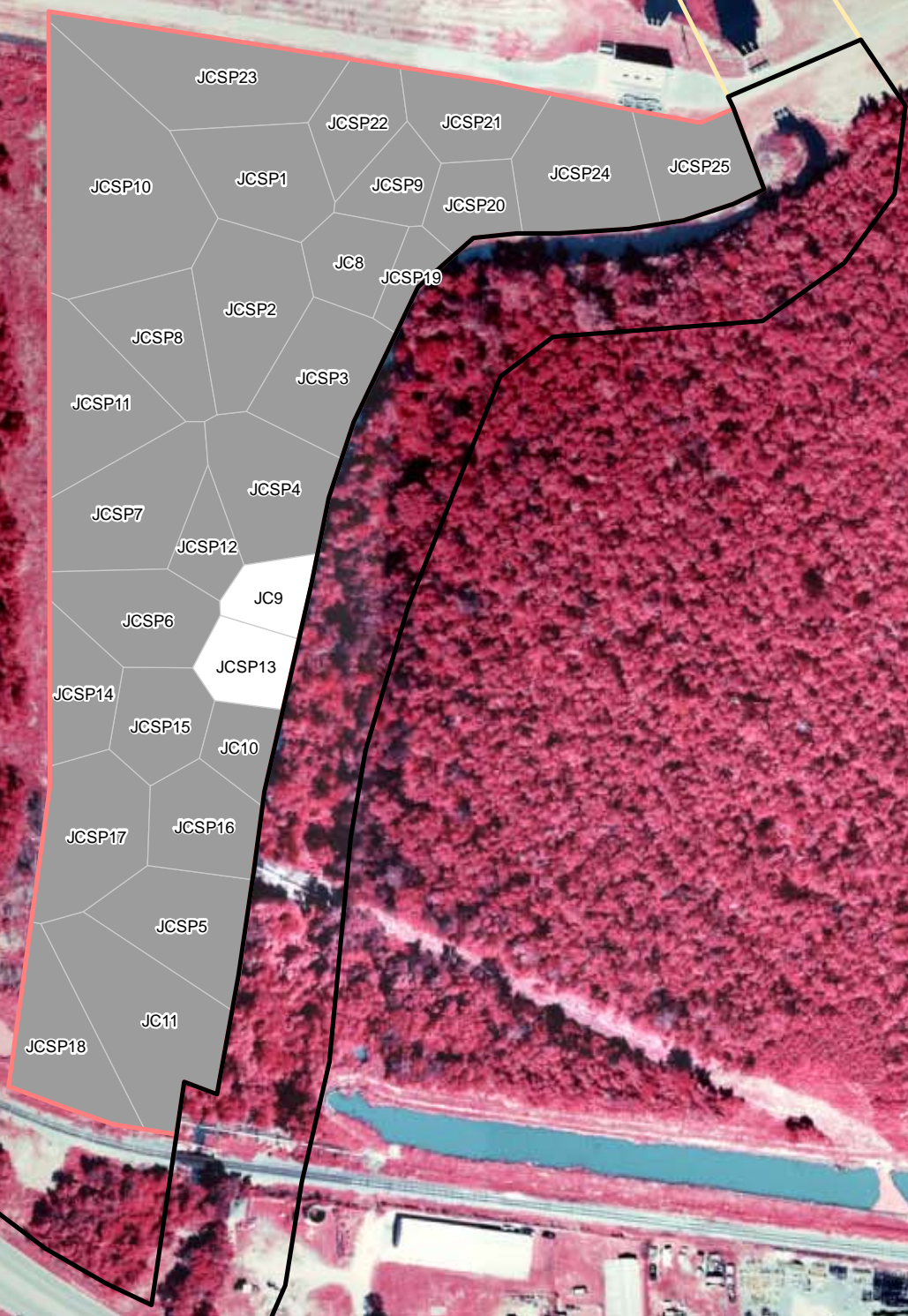
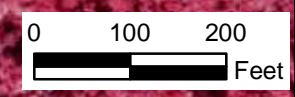
Figure 22  
NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
CADMIUM PCL EXCEEDANCES IN SOIL  
STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
Chevron Environmental Management Company, Bellaire, Texas



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# TOTAL CHROMIUM

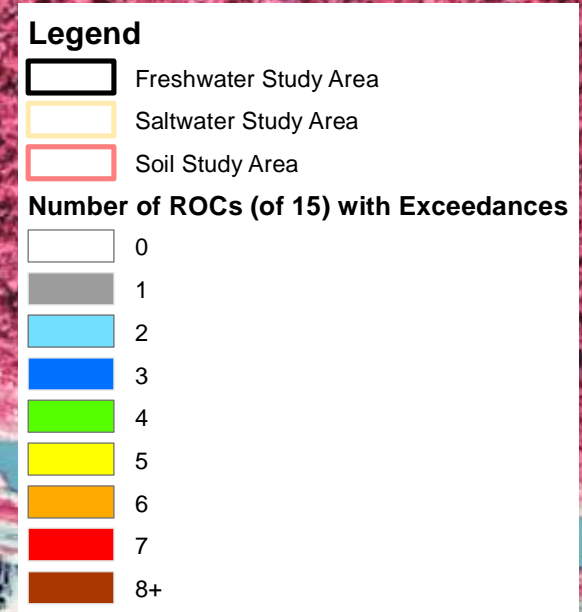
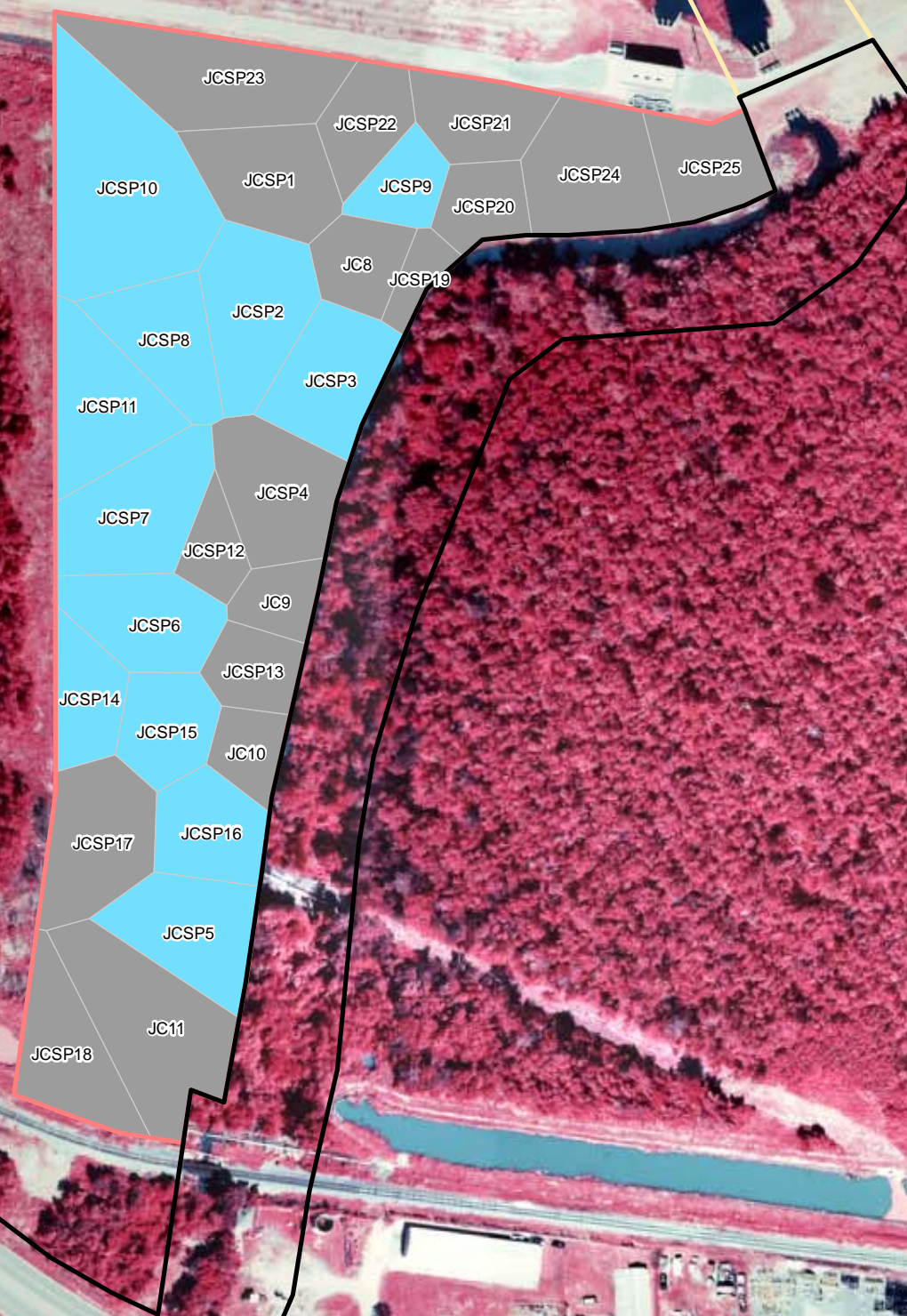
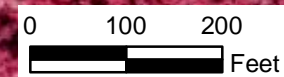


Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 23  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 TOTAL CHROMIUM PCL EXCEEDANCES IN SOIL  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



# CHROMIUM VI



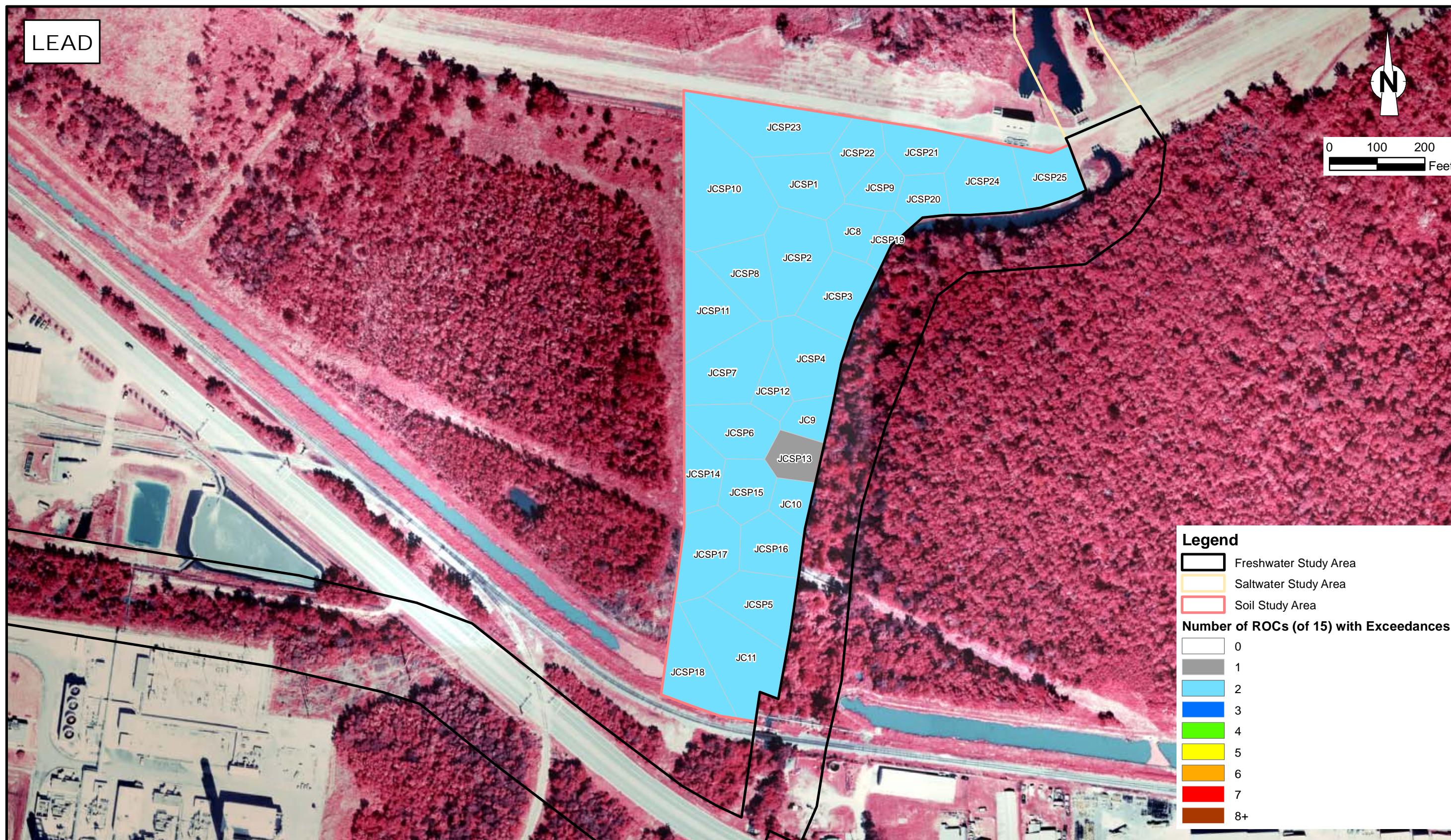
Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 24  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 CHROMIUM VI PCL EXCEEDANCES IN SOIL  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
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Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 25  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 LEAD PCL EXCEEDANCES IN SOIL  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



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 Data provided by Cardno Entrix, Houston, Texas.



# MANGANESE



Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 26  
NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
MANGANESE PCL EXCEEDANCES IN SOIL  
STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
Data provided by Cardno Entrix, Houston, Texas.





Note: All exceedances are for GMATC PCLs except for Threatened and Endangered (T&E) species, which are for NOAEL PCLs.

Figure 27  
 NUMBER OF UPPER TROPHIC LEVEL RECEPTORS WITH  
 VANADIUM PCL EXCEEDANCES IN SOIL  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
 Data provided by Cardno Entrix, Houston, Texas.



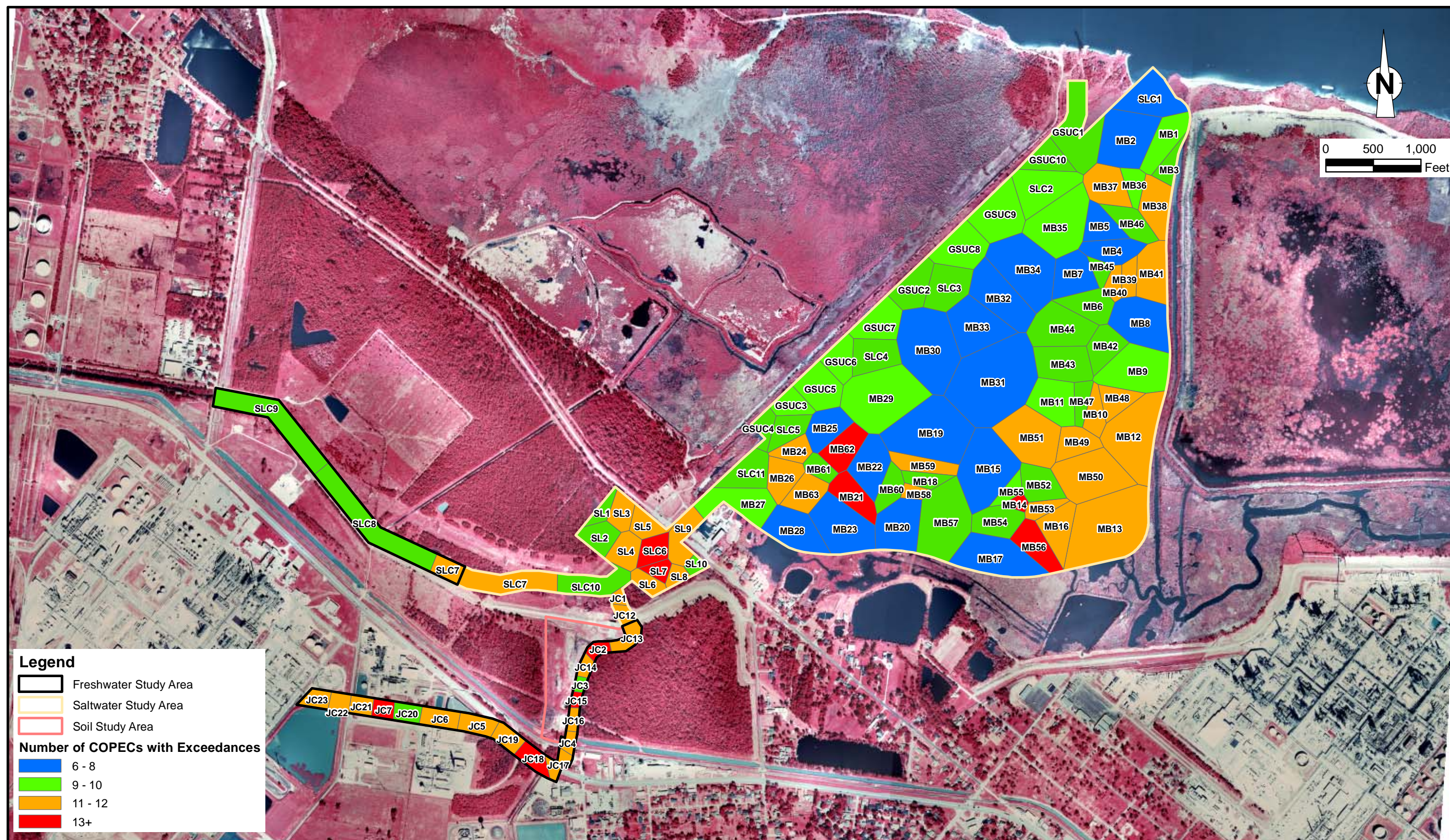


Figure 28  
 NUMBER OF COPEC PCL EXCEEDANCES IN SEDIMENT  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
*Chevron Environmental Management Company, Bellaire, Texas*



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
 Data provided by Cardno Entrix, Houston, Texas.



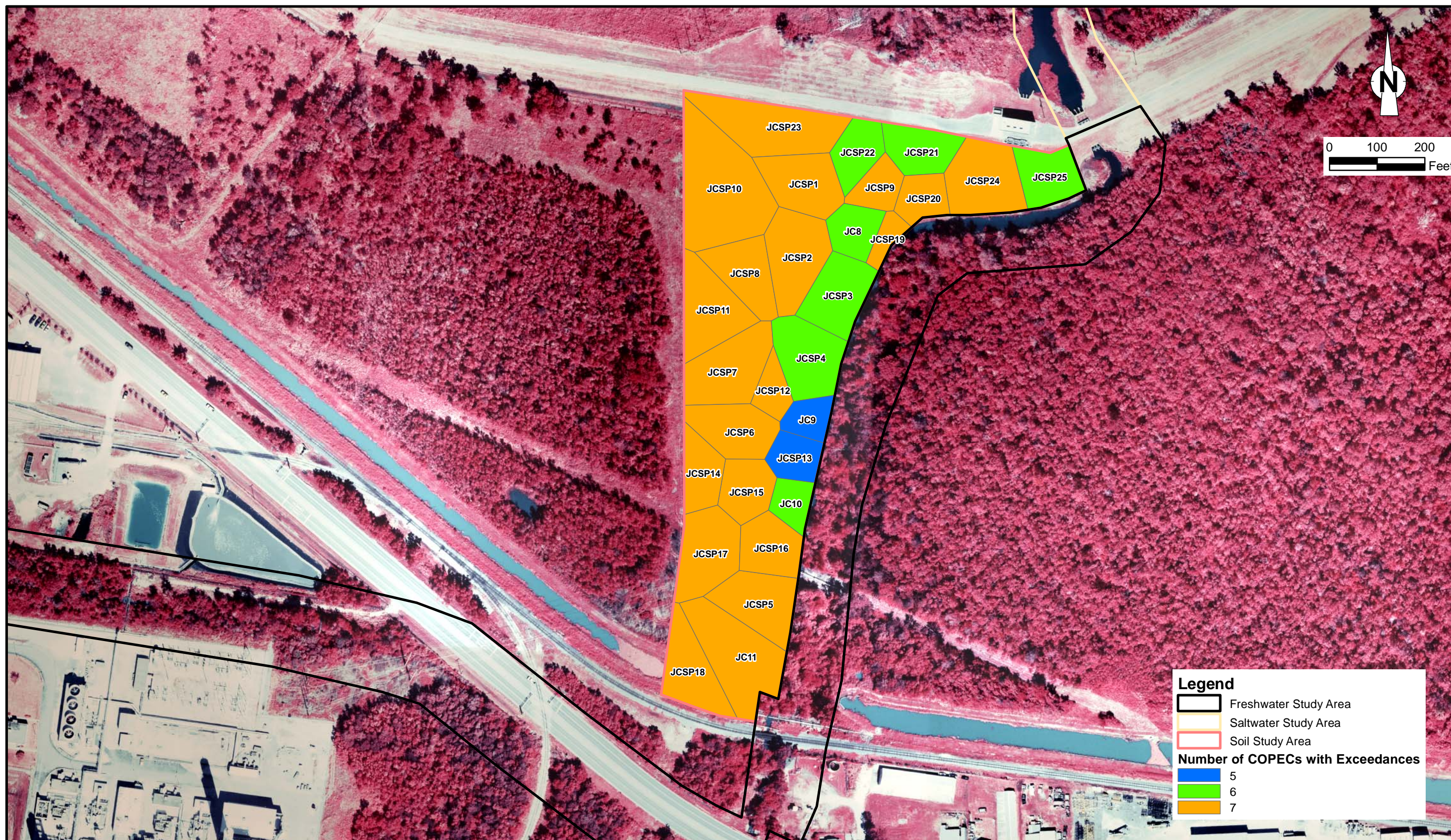


Figure 29  
 NUMBER OF COPEC PCL EXCEEDANCES IN SOIL  
 STAR LAKE CANAL SUPERFUND SITE, JEFFERSON COUNTY, TEXAS  
 Chevron Environmental Management Company, Bellaire, Texas



RE: August 2009 Gulf Coast Aerial Mapping Photograph.  
 Data provided by Cardno Entrix, Houston, Texas.



## TABLES



TABLE 1  
FORAGING AREAS OF DIETARY ITEMS  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Sample ID	Fish	Vegetation	Amphibians	Crustacea	Insects	Worms	Description/Reasoning (Based on infrared aerial from October 2009 in low water)
GSUC-1	X		X	X	X		sediment sample 10' + from vegetation edge
GSUC-2	X	X	X	X	X		sediment sample right on edge of water/vegetation line
GSUC-3	X	X	X	X	X		sediment sample right on edge of water/vegetation line in shallow part of GSUC
GSUC-4		X	X	X	X		sediment sample underneath transmission line in scrub
GSUC-5	X	X	X	X	X		sediment sample right on edge of water/vegetation line in shallow part of GSUC
GSUC-6		X	X	X	X		sediment sample on edge of water/vegetation line, but would be extremely shallow even in high water
GSUC-7		X	X	X	X		sediment sample although could be both during high water....
GSUC-8	X	X	X	X	X		sediment sample within 6' of canal centerline in low water; vegetation indicative of inundation in higher water
GSUC-9	X	X	X	X	X		sediment sample right on edge of water/vegetation line
GSUC-10		X	X	X	X		sediment sample underneath transmission line in scrub
JC-1	X	X	X	X	X		sediment sample on edge of water/vegetation line
JC-2			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-3			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-4			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-5			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-6			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-7			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-12	X		X	X	X		sediment sample in middle of Jefferson Canal, 20' + from vegetation edge
JC-13			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-14			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-15			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-16			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-17			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-18			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-19			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-20			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-21			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-22			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
JC-23			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
MB-1	X		X	X	X		sediment sample in middle of Molasses Bayou (north portion), 30' + from vegetation edge
MB-2		X	X	X	X		sediment sample wet vegetation (water underneath), but thick vegetation so fish most likely wouldn't get through
MB-3		X	X	X	X		sediment sample 30' from waters edge; I remember them parking the airboat, getting out, and walking to these sites
MB-4		X	X	X	X		sediment sample in between 2 pieces of open water, 7' and 18' away, but established peninsula of vegetation
MB-5		X	X	X	X		sediment sample; no open water nearby
MB-6	X	X	X	X	X		sediment sample right on edge of vegetation/ water line
MB-7		X	X	X	X		sediment sample; no open water nearby
MB-8		X	X	X	X		sediment sample; no open water nearby
MB-9		X	X	X	X		sediment sample; no open water nearby
MB-10		X	X	X	X		sediment sample near small offshoot bayou, but vegetation too thick for fish
MB-11		X	X	X	X		sediment sample no open water nearby
MB-12		X	X	X	X		sediment sample no open water nearby
MB-13	X	X	X	X	X		sediment sample in fragmented marsh, approximately 3' from waters edge in low water, would be inundated in high water
MB-14	X	X	X	X	X		sediment sample approximately 2' from waters edge, would most likely be on water/vegetation edge in higher water
MB-15		X	X	X	X		sediment sample nearby small pocket of open water (very shallow and silty), but no fish usually in those pockets
MB-16		X	X	X	X		sediment sample within shallow pocket of water (silty); little connection to open water
MB-17		X	X	X	X		sediment sample no open water nearby
MB-18	X	X	X	X	X		sediment sample right on edge of water/vegetation line in Molasses Bayou
MB-19		X	X	X	X		sediment sample 15' + from small pocket of water not likely to contain fish
MB-20		X	X	X	X		sediment sample 75' + from waters edge



TABLE 1  
FORAGING AREAS OF DIETARY ITEMS  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Sample ID	Fish	Vegetation	Amphibians	Crustacea	Insects	Worms	Description/Reasoning (Based on infrared aerial from October 2009 in low water)
MB-21		X	X	X	X		sediment sample 12' + from waters edge, not likely to be inundated in higher water
MB-22		X	X	X	X		sediment sample; no open water nearby
MB-23		X	X	X	X		sediment sample; no open water nearby
MB-24	X	X	X	X	X		sediment sample in middle of Molasses Bayou at entrance at Star Lake Canal where very shallow and thin
MB-25		X	X	X	X		sediment sample; no open water nearby
MB-26		X	X	X	X		sediment sample; no open water nearby
MB-27	X		X	X	X		sediment sample in middle of offshoot canal connecting facility with Star Lake Canal (airboat launch area)
MB-28	X		X	X	X		sediment sample in middle of large open bay east of facility, north of residences
MB-29	X		X	X	X		sediment sample in middle of large open bay off Star Lake Canal
MB-30	X		X	X	X		sediment sample in middle of very shallow open water; submerged vegetation at this location
MB-31		X	X	X	X		sediment sample 45' + from waters edge
MB-32	X	X	X	X	X		sediment sample right on edge of vegetation/ water line at entrance to Molasses Bayou
MB-33		X	X	X	X		sediment sample 35' + from waters edge
MB-34		X	X	X	X		sediment sample; small pockets of water nearby, but fish were not usually found in those pockets
MB-35		X	X	X	X		sediment sample; would be wet vegetation during high water, but thick so most likely not any fish
MB-36		X	X	X	X		sediment sample; may have very shallow water during high water, but most likely not any fish
MB-37		X	X	X	X		sediment sample; no open water nearby
MB-38		X	X	X	X		sediment sample; no open water nearby
MB-39		X	X	X	X		sediment sample; no open water nearby
MB-40		X	X	X	X		sediment sample; no open water nearby
MB-41		X	X	X	X		sediment sample; no open water nearby
MB-42		X	X	X	X		sediment sample at end of small offshoot bayou, but vegetation too thick for fish
MB-43	X	X	X	X	X		sediment sample in Molasses Bayou where not wide; shows vegetation on aerial, but bayou is beneath
MB-44		X	X	X	X		sediment sample 20' + from waters edge
MB-45		X	X	X	X		sediment sample approximately 10' from bayou, but established vegetation
MB-46		X	X	X	X		sediment sample; no open water nearby
MB-47		X	X	X	X		sediment sample; no open water nearby
MB-48		X	X	X	X		sediment sample; no open water nearby
MB-49		X	X	X	X		sediment sample approximately 6' from bayou, but in established vegetation, looks slightly higher in elevation
MB-50		X	X	X	X		sediment sample; no open water nearby
MB-51		X	X	X	X		sediment sample; no open water nearby
MB-52		X	X	X	X		sediment sample approximately 18' from Molasses Bayou within established vegetation
MB-53		X	X	X	X		sediment sample approximately 14' from Molasses Bayou within established vegetation
MB-54		X	X	X	X		sediment sample 20' + from waters edge
MB-55		X	X	X	X		sediment sample 65' + from waters edge
MB-56		X	X	X	X		sediment sample 50' + from waters edge
MB-57		X	X	X	X		sediment sample approximately 10' from bayou, but in established vegetation; not likely to be inundated with higher water
MB-58		X	X	X	X		sediment sample 50' + from waters edge
MB-59	X	X	X	X	X		sediment sample within small pocket of water, may contain fish and crustaceans, little connection to open water
MB-60	X		X	X	X		sediment sample in middle of bayou, 5' from either vegetation edge
MB-61	X	X	X	X	X		sediment sample right on edge of water/ vegetation line in Molasses Bayou
MB-62		X	X	X	X		sediment sample; no open water nearby
MB-63		X	X	X	X		sediment sample 80' + from Molasses Bayou
SL-1		X	X	X	X		sediment sample; no open water nearby; filled in
SL-2		X	X	X	X		sediment sample; no open water nearby; filled in
SL-3		X	X	X	X		sediment sample; no open water nearby; filled in
SL-4		X	X	X	X		sediment sample; no open water nearby; filled in
SL-5		X	X	X	X		sediment sample; no open water nearby; filled in



TABLE 1  
FORAGING AREAS OF DIETARY ITEMS  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Sample ID	Fish	Vegetation	Amphibians	Crustacea	Insects	Worms	Description/Reasoning (Based on infrared aerial from October 2009 in low water)
SL-6		X	X	X	X		sediment sample; no open water nearby; filled in
SL-7		X	X	X	X		sediment sample; no open water nearby; filled in
SL-8		X	X	X	X		sediment sample; no open water nearby; filled in
SL-9		X	X	X	X		sediment sample; no open water nearby; filled in
SL-10		X	X	X	X		sediment sample; no open water nearby; filled in
SLC-1	X		X	X	X		sediment sample open water at mouth of Star Lake Canal into Neches River
SLC-2	X		X	X	X		sediment sample; open water in center of Star Lake Canal
SLC-3	X		X	X	X		sediment sample; open water in center of Star Lake Canal
SLC-4	X		X	X	X		sediment sample; open water in center of Star Lake Canal
SLC-5	X		X	X	X		sediment sample; open water in center of Star Lake Canal
SLC-6	X		X	X	X		sediment sample in middle of Star Lake Canal in old Star Lake site; approximately 8' from vegetation edge on either side
SLC-7	X	X	X	X	X		sediment sample in Star Lake Canal where it gets shallower and more covered with surface vegetation
SLC-8			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
SLC-9			X		X		freshwater sample; fish, crabs, worms, and vegetation not collected in freshwater areas
SLC-10	X	X	X	X	X		sediment sample on edge of water with surface vegetation and other vegetation line
SLC-11	X		X	X	X		sediment sample; open water in center of Star Lake Canal
JC-8						X	soil sample in Jefferson Canal Spoil Pile
JC-9						X	soil sample in Jefferson Canal Spoil Pile
JC-10						X	soil sample in Jefferson Canal Spoil Pile
JC-11						X	soil sample in Jefferson Canal Spoil Pile
JCSP-1						X	soil sample in Jefferson Canal Spoil Pile
JCSP-2						X	soil sample in Jefferson Canal Spoil Pile
JCSP-3						X	soil sample in Jefferson Canal Spoil Pile
JCSP-4						X	soil sample in Jefferson Canal Spoil Pile
JCSP-5						X	soil sample in Jefferson Canal Spoil Pile
JCSP-6						X	soil sample in Jefferson Canal Spoil Pile
JCSP-7						X	soil sample in Jefferson Canal Spoil Pile
JCSP-8						X	soil sample in Jefferson Canal Spoil Pile
JCSP-9						X	soil sample in Jefferson Canal Spoil Pile
JCSP-10						X	soil sample in Jefferson Canal Spoil Pile
JCSP-11						X	soil sample in Jefferson Canal Spoil Pile
JCSP-12						X	soil sample in Jefferson Canal Spoil Pile
JCSP-13						X	soil sample in Jefferson Canal Spoil Pile
JCSP-14						X	soil sample in Jefferson Canal Spoil Pile
JCSP-15						X	soil sample in Jefferson Canal Spoil Pile
JCSP-16						X	soil sample in Jefferson Canal Spoil Pile
JCSP-17						X	soil sample in Jefferson Canal Spoil Pile
JCSP-18						X	soil sample in Jefferson Canal Spoil Pile
JCSP-19						X	soil sample in Jefferson Canal Spoil Pile
JCSP-20						X	soil sample in Jefferson Canal Spoil Pile
JCSP-21						X	soil sample in Jefferson Canal Spoil Pile
JCSP-22						X	soil sample in Jefferson Canal Spoil Pile
JCSP-23						X	soil sample in Jefferson Canal Spoil Pile
JCSP-24						X	soil sample in Jefferson Canal Spoil Pile
JCSP-25						X	soil sample in Jefferson Canal Spoil Pile



**TABLE 2**  
**SITE-SPECIFIC BAFs OF DIETARY ITEMS**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>COPEC</i>	<i>Crab</i>	<i>Insect</i>	<i>Frog</i>	<i>Small Fish</i>	<i>Worms</i>	<i>Vegetation</i>
Carbon disulfide	23.60	39.73	43.92	30.49	763.01	0.20
Ethylbenzene	86.97	84.78	57.24	115.92	184.78	3.57
Benzaldehyde	5.40	6.95	5.06	114.43	11.42	N/A
Dibenzofuran	51.73*	1.00*	N/A	1.00*	1.00*	N/A
Hexachlorobenzene	3.99	3.98	3.96	3.99	3.94	1.99
Nitrobenzene	3.99	4.05	4.04	4.00	5.46	2.02
Pentachlorophenol	4.01	3.86	3.59	4.01	3.91	1.99
Endosulfan II	2.79	2.08	1.79	19.91	4.89	1.84
Endrin	2.90	2.28	1.96	2.16	9.20	2.18
Aluminum	0.01	0.00	0.00	0.03	0.19	0.02
Antimony	1.06	1.05	1.05	1.06	0.95	1.03
Arsenic	0.45	0.47	0.44	0.46	0.43	0.43
Cadmium	1.35	1.21	1.21	1.34	1.37	1.25
Chromium	0.06	0.03	0.05	0.10	0.45	0.04
Chromium VI (hexavalent)	1.00*	7.78	2.53	1.00*	1.86	0.68
Copper	0.72	0.45	0.14	0.15	0.98	0.09
Lead	0.04	0.05	0.05	0.11	1.28	0.04
Manganese	1.52	0.15	0.04	0.04	0.29	0.52
Selenium	0.98	1.00	0.99	0.98	1.02	1.00
Vanadium	0.01	0.01	0.01	0.05	0.14	0.03
Zinc	0.65	1.31	0.76	0.80	1.21	0.26
Total PAHs	1.19	2.22	1.51	1.76	2.04	1.28

Notes:

N/A = not applicable because Site-specific BAF not used in any models for PCL determination

\* Site-specific BAF not able to be calculated due to lack of tissue data. The BAF given is the value used in the Tier 2 RI.

Italics denotes arithmetic mean, all other values are geometric mean.



**TABLE 3**  
**SEDIMENT PCLS FOR UPPER TROPHIC LEVEL ROCS**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>COPEC</i>	<i>ROC</i>	<i>Sediment NOAEL PCL (mg/kg)</i>	<i>Sediment GMATC PCL (mg/kg)</i>	<i>Sediment LOAEL PCL (mg/kg)</i>
Carbon Disulfide	Spotted sandpiper	0.0064	0.0143	N/A
Ethylbenzene	Marsh wren	0.0013	0.0029	N/A
Ethylbenzene	Spotted sandpiper	0.0017	N/A	N/A
Benzaldehyde	Belted kingfisher	0.0391	N/A	N/A
Dibenzofuran	Spotted sandpiper	0.0002	0.0004	0.0010
Hexachlorobenzene	Raccoon	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>
Hexachlorobenzene	Short-tailed shrew	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>
Hexachlorobenzene	Mallard	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>
Hexachlorobenzene	Marsh wren	0.0240	N/A <sup>1</sup>	N/A <sup>1</sup>
Hexachlorobenzene	Spotted sandpiper	0.0290	N/A <sup>1</sup>	N/A <sup>1</sup>
Hexachlorobenzene	Bullfrog	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>
Hexachlorobenzene	Painted turtle	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>
Nitrobenzene	American robin	0.1174	N/A	N/A
Pentachlorophenol	Raccoon	0.0401	0.0905	0.2020
Pentachlorophenol	Short-tailed shrew	0.0325	0.0730	0.1630
Pentachlorophenol	Spotted sandpiper	0.0358	N/A	N/A
Pentachlorophenol	Painted turtle	0.0182	N/A	N/A
Total PAHs	Raccoon	1.8000	N/A	N/A
Total PAHs	Muskrat	0.6385	N/A	N/A
Total PAHs	Short-tailed shrew	0.0519	0.2275	0.6125
PCB Congeners ( $\sum \text{TEQ}_{\text{PCB}}$ )	Raccoon	N/A <sup>2</sup>	N/A	N/A
PCB Congeners ( $\sum \text{TEQ}_{\text{PCB}}$ )	Short-tailed shrew	N/A <sup>2</sup>	N/A	N/A
Endosulfan II	Raccoon	N/A <sup>2</sup>	0.0021	N/A
Endrin	American robin	0.0272	N/A	N/A
Aluminum	Raccoon	8150	18300	40800
Aluminum	Muskrat	5225	11700	N/A
Aluminum	Short-tailed shrew	770	1742	3908
Aluminum	American robin	127	322	759
Aluminum	Belted kingfisher	122	290	665
Aluminum	Mallard	16242	N/A	N/A
Aluminum	Marsh wren	130	365	890
Aluminum	Spotted sandpiper	89	238	570
Aluminum	White-faced ibis	68550	153550	344000
Aluminum	Wood stork	6657	N/A	N/A
Aluminum	Bullfrog	2855	6482	N/A



**TABLE 3**  
**SEDIMENT PCLS FOR UPPER TROPHIC LEVEL ROCS**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>COPEC</i>	<i>ROC</i>	<i>Sediment NOAEL PCL (mg/kg)</i>	<i>Sediment GMATC PCL (mg/kg)</i>	<i>Sediment LOAEL PCL (mg/kg)</i>
Aluminum	Painted turtle	7800	17550	N/A
Antimony	Short-tailed shrew	0.9200	N/A	N/A
Antimony	American robin	N/A <sup>2</sup>	N/A <sup>2</sup>	0.1377
Antimony	Belted kingfisher	0.0941	0.2118	0.4749
Antimony	Marsh wren	0.0356	0.0808	0.1819
Antimony	Spotted sandpiper	0.0212	0.0810	0.2150
Antimony	White-faced ibis	1.1800	N/A	N/A
Antimony	Wood stork	0.4650	N/A	N/A
Antimony	Bullfrog	0.2322	0.5234	N/A
Antimony	Painted turtle	0.6635	N/A	N/A
Arsenic	Marsh wren	17.1200	N/A	N/A
Arsenic	Bullfrog	1.4490	3.2440	N/A
Arsenic	Painted turtle	4.1600	N/A	N/A
Cadmium	American robin	0.0272	0.1348	N/A
Cadmium	Belted kingfisher	0.0783	N/A	N/A
Cadmium	Marsh wren	0.0324	0.0725	N/A
Cadmium	Spotted sandpiper	0.0382	0.0905	N/A
Cadmium	Bullfrog	0.0489	N/A	N/A
Chromium Total	American robin	58.9000	135.0000	306.0000
Chromium Total	Belted kingfisher	26.6500	N/A	N/A
Chromium Total	Spotted sandpiper	24.7000	N/A	N/A
Chromium Total	Bullfrog	38.5800	N/A	N/A
Chromium VI	Raccoon	0.8700	1.9800	N/A
Chromium VI	Muskrat	0.6480	1.4500	3.2500
Chromium VI	American robin	0.4330	1.5900	4.1500
Chromium VI	Belted kingfisher	0.3791	0.8507	N/A
Chromium VI	Marsh wren	0.0289	0.0655	0.1475
Chromium VI	Spotted sandpiper	0.0060	0.0188	0.0474
Chromium VI	Bullfrog	0.3079	0.6980	N/A
Chromium VI	Painted turtle	1.0550	N/A	N/A
Copper	American robin	15.9500	36.7500	82.9500
Copper	Belted kingfisher	5.1120	11.4400	25.5900
Copper	Marsh wren	1.2125	2.7255	6.1000
Copper	Spotted sandpiper	3.7300	8.3800	18.7500
Lead	Raccoon	268.1000	N/A	N/A



**TABLE 3**  
**SEDIMENT PCLS FOR UPPER TROPHIC LEVEL ROCS**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>COPEC</i>	<i>ROC</i>	<i>Sediment NOAEL PCL (mg/kg)</i>	<i>Sediment GMATC PCL (mg/kg)</i>	<i>Sediment LOAEL PCL (mg/kg)</i>
Lead	Short-tailed shrew	30.0000	68.5200	154.0000
Lead	American robin	61.0000	145.0000	334.0000
Lead	Spotted sandpiper	23.0900	52.1000	N/A
Lead	White-faced ibis	364.0000	N/A	N/A
Lead	Bullfrog	8.7960	19.7000	N/A
Manganese	Raccoon	304.0000	680.0000	1525.0000
Manganese	Muskrat	31.5000	70.5000	157.5000
Manganese	American robin	42.7700	95.8200	214.0000
Manganese	Belted kingfisher	60.7800	136.0000	N/A
Manganese	Marsh wren	50.5750	114.0000	N/A
Manganese	Spotted sandpiper	43.3000	97.0000	N/A
Manganese	Bullfrog	9.4980	21.9900	49.8900
Manganese	Painted turtle	25.6500	58.0000	130.0000
Selenium	Raccoon	0.0917	0.2400	0.5720
Selenium	Muskrat	0.2464	0.5580	1.2550
Selenium	Short-tailed shrew	0.2230	0.5690	1.3410
Selenium	American robin	0.4366	1.1890	N/A
Selenium	Belted kingfisher	0.5855	N/A	N/A
Selenium	Marsh wren	0.2170	0.4890	N/A
Selenium	Spotted sandpiper	0.2770	0.6370	N/A
Selenium	Bullfrog	0.7151	N/A	N/A
Vanadium	Raccoon	45.5800	102.5000	230.0000
Vanadium	Muskrat	25.9000	N/A	N/A
Vanadium	Short-tailed shrew	24.3000	34.3000	48.5000
Vanadium	American robin	30.0000	67.7000	151.5000
Vanadium	Belted kingfisher	23.8700	N/A	N/A
Vanadium	Spotted sandpiper	22.0000	49.3600	N/A
Vanadium	Bullfrog	16.9100	N/A	N/A
Zinc	Marsh wren	20.8500	N/A	N/A
Zinc	Spotted sandpiper	29.5000	N/A	N/A
Zinc	Bullfrog	20.2800	N/A	N/A

Notes:

N/A = not applicable because HQ < 1 with Site RMEs

N/A<sup>1</sup> = not applicable because new mollusk BAF resulted in HQ < 1

N/A<sup>2</sup> = not applicable because PCL could not be calculated



**TABLE 4**  
**SOIL PCLS FOR UPPER TROPHIC LEVEL ROCS**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>COPEC</i>	<i>Receptor of Concern (ROC)</i>	<i>Soil NOAEL PCL (mg/kg)</i>	<i>Soil GMATC PCL (mg/kg)</i>	<i>Soil LOAEL PCL (mg/kg)</i>
Hexachlorobenzene	Raccoon	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>
Hexachlorobenzene	Short-tailed shrew	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>
Nitrobenzene	American robin	0.0491	N/A	N/A
Pentachlorophenol	Raccoon	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
Pentachlorophenol	Short-tailed shrew	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
Total PAHs	Raccoon	N/A <sup>2</sup>	N/A	N/A
Total PAHs	Short-tailed shrew	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
PCB Congeners ( $\Sigma$ TEQ <sub>PCB</sub> )	Raccoon	4.9000 <sup>3</sup>	N/A	N/A
PCB Congeners ( $\Sigma$ TEQ <sub>PCB</sub> )	Short-tailed shrew	1.2400 <sup>3</sup>	N/A	N/A
Endosulfan II	Raccoon	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
Endrin	American robin	N/A <sup>2</sup>	N/A	N/A
Aluminum	Raccoon	N/A <sup>2</sup>	791.0000	4133.0000
Aluminum	Short-tailed shrew	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
Aluminum	American robin	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
Antimony	Short-tailed shrew	N/A <sup>2</sup>	N/A	N/A
Antimony	American robin	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
Antimony	White-faced ibis	N/A <sup>2</sup>	N/A	N/A
Cadmium	American robin	N/A <sup>2</sup>	0.0343	N/A
Chromium Total	American robin	2.1750	9.1010	24.5900
Chromium VI	Raccoon	N/A <sup>2</sup>	3.4780	N/A
Chromium VI	American robin	N/A <sup>2</sup>	0.2236	1.2530
Copper	American robin	N/A <sup>2</sup>	N/A <sup>2</sup>	1.7820
Lead	Raccoon	71.8300	N/A	N/A
Lead	Short-tailed shrew	N/A <sup>2</sup>	0.2832	21.4100
Lead	American robin	N/A <sup>2</sup>	2.9460	9.5460
Manganese	Raccoon	62.5800	275.0000	750.0000
Manganese	American robin	N/A <sup>2</sup>	N/A <sup>2</sup>	40.2400
Selenium	Raccoon	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
Selenium	Short-tailed shrew	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>
Selenium	American robin	N/A <sup>2</sup>	N/A <sup>2</sup>	N/A
Vanadium	Raccoon	3.6390	14.2600	38.0300
Vanadium	Short-tailed shrew	N/A <sup>2</sup>	5.8630	16.4400
Vanadium	American robin	0.8432	9.2090	27.9100

## Notes:

N/A = not applicable because HQ &lt; 1 with Site RMEs

N/A<sup>1</sup> = not applicable because new mollusk BAF resulted in HQ < 1N/A<sup>2</sup> = not applicable because PCL could not be calculated<sup>3</sup> Nanograms of the sum of toxicity equivalency factors for PCBs (TEQ<sub>PCB</sub>) per kilogram - ng  $\Sigma$ TEQ<sub>PCB</sub> /kg



**TABLE 5**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF CARBON DISULFIDE**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Carbon Disulfide Concentration or Non-detect Concentration in Sample</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.0143 mg/kg</i>
GSUC1	0.0051	
GSUC2	0.0107	
GSUC3	0.0033	
GSUC4	0.0084	
GSUC5	0.0064	
GSUC6	0.0077	
GSUC7	0.0136	
GSUC8	0.0128	
GSUC9	0.0036	
GSUC10	0.0033	
JC1	0.0031	
JC2	0.0000	
JC3	0.0002	
JC4	0.0002	
JC5	0.0000	
JC6	0.0010	
JC7	0.0412	X
JC12	0.0004	
JC13	0.0046	
JC14	0.0008	
JC15	0.0002	
JC16	0.0003	
JC17	0.0002	
JC18	0.0058	
JC19	0.0032	
JC20	0.0025	
JC21	0.0007	
JC22	0.0008	
JC23	0.0005	
MB1	0.0004	
MB2	0.0015	
MB3	0.0003	
MB4	0.0015	
MB5	0.0009	
MB6	0.0011	
MB7	0.0023	
MB8	0.0011	
MB9	0.0008	
MB10	0.0093	
MB11	0.0044	
MB12	0.0002	
MB13	0.0003	
MB14	0.0336	X
MB15	0.0021	



**TABLE 5**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF CARBON DISULFIDE**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Carbon Disulfide Concentration or Non-detect Concentration in Sample</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.0143 mg/kg</i>
MB16	0.0027	
MB17	0.0035	
MB18	0.0005	
MB19	0.0031	
MB20	0.0018	
MB21	0.0340	X
MB22	0.0040	
MB23	0.0021	
MB24	0.0172	X
MB25	0.0018	
MB26	0.0013	
MB27	0.0012	
MB28	0.0016	
MB29	0.0020	
MB30	0.0066	
MB31	0.0029	
MB32	0.0028	
MB33	0.0065	
MB34	0.0031	
MB35	0.0025	
MB36	0.0002	
MB37	0.0002	
MB38	0.0001	
MB39	0.0035	
MB40	0.0002	
MB41	0.0029	
MB42	0.0020	
MB43	0.0024	
MB44	0.0027	
MB45	0.0025	
MB46	0.0037	
MB47	0.0005	
MB48	0.0003	
MB49	0.0033	
MB50	0.0002	
MB51	0.0006	
MB52	0.0032	
MB53	0.0028	
MB54	0.0132	
MB55	0.0011	
MB56	0.0200	X
MB57	0.0003	
MB58	0.0003	
MB59	0.0002	



**TABLE 5**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF CARBON DISULFIDE**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Carbon Disulfide Concentration or Non-detect Concentration in Sample</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.0143 mg/kg</i>
MB60	0.0127	
MB61	0.0019	
MB62	0.0003	
MB63	0.0003	
SL1	0.0005	
SL2	0.0127	
SL3	0.0003	
SL4	0.0020	
SL5	0.0117	
SL6	0.0001	
SL7	0.0002	
SL8	0.0001	
SL9	0.0004	
SL10	0.0013	
SLC1	0.0002	
SLC2	0.0004	
SLC3	0.0010	
SLC4	0.0011	
SLC5	0.0008	
SLC6	0.0065	
SLC7	0.0021	
SLC8	0.0000	
SLC9	0.0012	
SLC10	0.0005	
SLC11	0.012006	

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

X = Sample concentration exceeded the PCL



**TABLE 6**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ETHYLBENZENE**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Ethylbenzene Concentration or Non-detect Concentration in Sample</i>	<i>Marsh wren</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.00289 mg/kg</i>
GSUC1	0.0003	
GSUC2	0.0006	
GSUC3	0.0005	
GSUC4	0.0002	
GSUC5	0.0003	
GSUC6	0.0003	
GSUC7	0.0027	
GSUC8	0.0024	
GSUC9	0.0001	
GSUC10	0.0001	
JC1	0.0002	
JC2	0.0038	X
JC3	0.0001	
JC4	0.0001	
JC5	0.0001	
JC6	0.0001	
JC7	0.7968	X
JC12	0.0001	
JC13	0.0001	
JC14	0.0001	
JC15	0.0001	
JC16	0.0002	
JC17	0.0036	X
JC18	0.0361	X
JC19	0.0009	
JC20	0.0002	
JC21	0.0531	X
JC22	0.0085	X
JC23	0.0003	
MB1	0.0001	
MB2	0.0001	
MB3	0.0001	
MB4	0.0001	
MB5	0.0001	
MB6	0.0001	
MB7	0.0001	
MB8	0.0001	
MB9	0.0001	
MB10	0.4500	X
MB11	0.0001	
MB12	0.0001	
MB13	0.0001	
MB14	0.0122	X
MB15	0.0001	
MB16	0.0001	



**TABLE 6**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ETHYLBENZENE**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Ethylbenzene Concentration or Non-detect Concentration in Sample</i>	<i>Marsh wren</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.00289 mg/kg</i>
MB17	0.0001	
MB18	0.0001	
MB19	0.0001	
MB20	0.0001	
MB21	0.3399	X
MB22	0.0001	
MB23	0.0001	
MB24	0.1238	X
MB25	0.0001	
MB26	0.0001	
MB27	0.0001	
MB28	0.0001	
MB29	0.0001	
MB30	0.0001	
MB31	0.0001	
MB32	0.0001	
MB33	0.0002	
MB34	0.0001	
MB35	0.0001	
MB36	0.0000	
MB37	0.0001	
MB38	0.0001	
MB39	0.0001	
MB40	0.0001	
MB41	0.0001	
MB42	0.0001	
MB43	0.0001	
MB44	0.0001	
MB45	0.0001	
MB46	0.0001	
MB47	0.0001	
MB48	0.0001	
MB49	0.0001	
MB50	0.0001	
MB51	0.0001	
MB52	0.0007	
MB53	0.0001	
MB54	0.0026	
MB55	0.0001	
MB56	0.0089	X
MB57	0.0004	
MB58	0.0001	
MB59	0.0002	
MB60	0.0024	
MB61	0.0017	



**TABLE 6**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ETHYLBENZENE**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Ethylbenzene Concentration or Non-detect Concentration in Sample</i>	<i>Marsh wren</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.00289 mg/kg</i>
MB62	0.0001	
MB63	0.0001	
SL1	0.0001	
SL2	0.0025	
SL3	0.0001	
SL4	0.0001	
SL5	0.0023	
SL6	0.0001	
SL7	0.0001	
SL8	0.0001	
SL9	0.0001	
SL10	0.0001	
SLC1	0.0001	
SLC2	0.0001	
SLC3	0.0001	
SLC4	0.0002	
SLC5	0.0001	
SLC6	0.0129	X
SLC7	0.0001	
SLC8	0.0001	
SLC9	0.0001	
SLC10	0.0001	
SLC11	0.0023	

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

X = Sample concentration exceeded the PCL



**TABLE 7**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF DIBENZOFURAN**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Dibenzofuran Concentration or Non-detect Concentration in Sample</i>	<i>Spotted sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.000421 mg/kg</i>
GSUC1	0.0054	X
GSUC2	0.0053	X
GSUC3	0.0053	X
GSUC4	0.0052	X
GSUC5	0.0053	X
GSUC6	0.0053	X
GSUC7	0.0054	X
GSUC8	0.0053	X
GSUC9	0.0053	X
GSUC10	0.0053	X
JC1	0.0055	X
JC2	0.0053	X
JC3	0.0054	X
JC4	0.0053	X
JC5	0.0267	X
JC6	0.0053	X
JC7	0.0053	X
JC12	0.0221	X
JC13	0.0054	X
JC14	0.0053	X
JC15	0.0054	X
JC16	0.0271	X
JC17	0.0054	X
JC18	0.0053	X
JC19	0.0053	X
JC20	0.0052	X
JC21	0.0072	X
JC22	0.0054	X
JC23	0.0053	X
MB1	0.0054	X
MB2	0.0053	X
MB3	0.0053	X
MB4	0.0054	X
MB5	0.0055	X
MB6	0.0052	X
MB7	0.0053	X
MB8	0.0054	X
MB9	0.0053	X
MB10	0.0053	X
MB11	0.0054	X
MB12	0.0052	X
MB13	0.0053	X
MB14	0.0053	X
MB15	0.0054	X
MB16	0.0053	X



**TABLE 7**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF DIBENZOFURAN**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Dibenzofuran Concentration or Non-detect Concentration in Sample</i>	<i>Spotted sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.000421 mg/kg</i>
MB17	0.0055	X
MB18	0.0054	X
MB19	0.0052	X
MB20	0.0053	X
MB21	0.0053	X
MB22	0.0053	X
MB23	0.0053	X
MB24	0.0053	X
MB25	0.0053	X
MB26	0.0053	X
MB27	0.0054	X
MB28	0.0053	X
MB29	0.0053	X
MB30	0.0052	X
MB31	0.0052	X
MB32	0.0054	X
MB33	0.0052	X
MB34	0.0054	X
MB35	0.0054	X
MB36	0.0025	X
MB37	0.0053	X
MB38	0.0054	X
MB39	0.0054	X
MB40	0.0053	X
MB41	0.0054	X
MB42	0.0054	X
MB43	0.0055	X
MB44	0.0054	X
MB45	0.0055	X
MB46	0.0052	X
MB47	0.0054	X
MB48	0.0054	X
MB49	0.0053	X
MB50	0.0053	X
MB51	0.0054	X
MB52	0.0054	X
MB53	0.0054	X
MB54	0.0054	X
MB55	0.0053	X
MB56	0.0053	X
MB57	0.0053	X
MB58	0.0053	X
MB59	0.0053	X
MB60	0.0053	X
MB61	0.0054	X



**TABLE 7**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF DIBENZOFURAN**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Dibenzofuran Concentration or Non-detect Concentration in Sample</i>	<i>Spotted sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.000421 mg/kg</i>
MB62	0.0053	X
MB63	0.0053	X
SL1	0.0053	X
SL2	0.0054	X
SL3	0.0053	X
SL4	0.0053	X
SL5	0.0053	X
SL6	0.0053	X
SL7	0.0053	X
SL8	0.0053	X
SL9	0.0054	X
SL10	0.0053	X
SLC1	0.0053	X
SLC2	0.0054	X
SLC3	0.0053	X
SLC4	0.0054	X
SLC5	0.0080	X
SLC6	0.0055	X
SLC7	0.0418	X
SLC8	0.0053	X
SLC9	0.0068	X
SLC10	0.0054	X
SLC11	0.0052	X

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

X = Sample concentration exceeded the PCL



**TABLE 8**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF PENTACHLOROPHENOL**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Pentachlorophenol Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Short-tailed Shrew</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.0905 mg/kg</i>	<i>PCL = 0.073 mg/kg</i>	<i>PCL = 0.0182 mg/kg</i>
GSUC1	0.1331	X	X	X
GSUC2	0.1321	X	X	X
GSUC3	0.1324	X	X	X
GSUC4	0.1322	X	X	X
GSUC5	0.1321	X	X	X
GSUC6	0.1342	X	X	X
GSUC7	0.1334	X	X	X
GSUC8	0.1326	X	X	X
GSUC9	0.1334	X	X	X
GSUC10	0.1337	X	X	X
JC1	0.1339	X	X	X
JC2	0.1315	X	X	X
JC3	0.1323	X	X	X
JC4	0.1350	X	X	X
JC5	0.1335	X	X	X
JC6	0.3463	X	X	X
JC7	92.9600	X	X	X
JC12	0.1339	X	X	X
JC13	0.1332	X	X	X
JC14	0.1359	X	X	X
JC15	0.1338	X	X	X
JC16	0.1357	X	X	X
JC17	0.1358	X	X	X
JC18	0.1347	X	X	X
JC19	0.1752	X	X	X
JC20	0.1469	X	X	X
JC21	0.1568	X	X	X
JC22	0.2068	X	X	X
JC23	0.1344	X	X	X
MB1	0.1334	X	X	X
MB2	0.1320	X	X	X
MB3	0.1318	X	X	X
MB4	0.1344	X	X	X
MB5	0.1354	X	X	X
MB6	0.1343	X	X	X
MB7	0.1329	X	X	X
MB8	0.1340	X	X	X
MB9	0.1330	X	X	X
MB10	0.1325	X	X	X
MB11	0.1322	X	X	X
MB12	0.1336	X	X	X
MB13	0.1337	X	X	X
MB14	0.1323	X	X	X
MB15	0.1332	X	X	X



**TABLE 8**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF PENTACHLOROPHENOL**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Pentachlorophenol Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Short-tailed Shrew</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.0905 mg/kg</i>	<i>PCL = 0.073 mg/kg</i>	<i>PCL = 0.0182 mg/kg</i>
MB16	0.1326	X	X	X
MB17	0.1339	X	X	X
MB18	0.1325	X	X	X
MB19	0.1336	X	X	X
MB20	0.1328	X	X	X
MB21	0.1329	X	X	X
MB22	0.1342	X	X	X
MB23	0.1380	X	X	X
MB24	0.1326	X	X	X
MB25	0.1330	X	X	X
MB26	0.1337	X	X	X
MB27	0.1331	X	X	X
MB28	0.1326	X	X	X
MB29	0.1326	X	X	X
MB30	0.1322	X	X	X
MB31	0.1339	X	X	X
MB32	0.1344	X	X	X
MB33	0.1345	X	X	X
MB34	0.1340	X	X	X
MB35	0.1321	X	X	X
MB36	0.0634			X
MB37	0.1345	X	X	X
MB38	0.1331	X	X	X
MB39	0.1331	X	X	X
MB40	0.1330	X	X	X
MB41	0.1344	X	X	X
MB42	0.1328	X	X	X
MB43	0.1320	X	X	X
MB44	0.1325	X	X	X
MB45	0.1318	X	X	X
MB46	0.1328	X	X	X
MB47	0.1344	X	X	X
MB48	0.1339	X	X	X
MB49	0.1326	X	X	X
MB50	0.1323	X	X	X
MB51	0.1323	X	X	X
MB52	0.1323	X	X	X
MB53	0.1348	X	X	X
MB54	0.1322	X	X	X
MB55	0.1329	X	X	X
MB56	0.1329	X	X	X
MB57	0.1326	X	X	X
MB58	0.1336	X	X	X
MB59	0.1341	X	X	X



**TABLE 8**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF PENTACHLOROPHENOL**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Pentachlorophenol Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Short-tailed Shrew</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.0905 mg/kg</i>	<i>PCL = 0.073 mg/kg</i>	<i>PCL = 0.0182 mg/kg</i>
MB60	0.1334	X	X	X
MB61	0.1335	X	X	X
MB62	0.1332	X	X	X
MB63	0.1337	X	X	X
SL1	0.1343	X	X	X
SL2	0.1314	X	X	X
SL3	0.1336	X	X	X
SL4	0.1344	X	X	X
SL5	0.1350	X	X	X
SL6	0.4752	X	X	X
SL7	0.5590	X	X	X
SL8	0.1324	X	X	X
SL9	0.2233	X	X	X
SL10	0.1349	X	X	X
SLC1	0.1336	X	X	X
SLC2	0.1327	X	X	X
SLC3	0.1353	X	X	X
SLC4	0.1344	X	X	X
SLC5	0.1345	X	X	X
SLC6	0.1340	X	X	X
SLC7	0.1302	X	X	X
SLC8	0.1353	X	X	X
SLC9	0.1357	X	X	X
SLC10	0.1337	X	X	X
SLC11	0.1357	X	X	X

## Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

\* Threatened and Endangered species or surrogate for Threatened and Endangered species

X = Sample concentration exceeded the PCL



**TABLE 9**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF TOTAL PAH**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Total PAH Concentration or Non-detect Concentration in Sample</i>	<i>Short-tailed Shrew</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.2275 mg/kg</i>
GSUC1	1.8714	X
GSUC2	2.1488	X
GSUC3	0.8330	X
GSUC4	9.5150	X
GSUC5	1.6109	X
GSUC6	0.9923	X
GSUC7	12.0899	X
GSUC8	8.9154	X
GSUC9	2.6037	X
GSUC10	1.7597	X
JC1	3.4274	X
JC2	38.6915	X
JC3	0.0132	
JC4	2.6278	X
JC5	2.2441	X
JC6	4.1756	X
JC7	20.1511	X
JC12	1.2988	X
JC13	69.9206	X
JC14	0.8844	X
JC15	0.5864	X
JC16	13.0951	X
JC17	8.1955	X
JC18	539.0298	X
JC19	35.2844	X
JC20	4.2967	X
JC21	4.3995	X
JC22	13.3367	X
JC23	2.8614	X
MB1	0.6827	X
MB2	0.0052	
MB3	0.6814	X
MB4	0.0373	
MB5	0.0207	
MB6	0.3014	X
MB7	0.0340	
MB8	0.2012	
MB9	0.1235	
MB10	108.7575	X
MB11	0.0449	
MB12	0.2059	
MB13	0.2628	X
MB14	80.8857	X
MB15	0.1574	
MB16	0.6066	X
MB17	0.0159	



**TABLE 9**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF TOTAL PAH**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Total PAH Concentration or Non-detect Concentration in Sample</i>	<i>Short-tailed Shrew</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.2275 mg/kg</i>
MB18	2.8678	X
MB19	0.0113	
MB20	0.0131	
MB21	303.5925	X
MB22	0.0295	
MB23	0.2228	
MB24	15.5469	X
MB25	0.0261	
MB26	1.1435	X
MB27	0.0487	
MB28	0.1827	
MB29	0.6716	X
MB30	0.0348	
MB31	0.0113	
MB32	0.0691	
MB33	0.0113	
MB34	0.0223	
MB35	0.2428	X
MB36	0.6297	X
MB37	2.1423	X
MB38	1.7452	X
MB39	2.3856	X
MB40	1.4288	X
MB41	2.3856	X
MB42	1.4148	X
MB43	2.9839	X
MB44	0.9544	X
MB45	0.6048	X
MB46	1.2838	X
MB47	3.1624	X
MB48	0.7949	X
MB49	7.1980	X
MB50	3.1396	X
MB51	5.0406	X
MB52	12.2448	X
MB53	1.3398	X
MB54	18.0365	X
MB55	0.8393	X
MB56	44.2187	X
MB57	5.5421	X
MB58	8.3330	X
MB59	7.9458	X
MB60	19.4598	X
MB61	17.3832	X
MB62	21.8315	X
MB63	224.9880	X



**TABLE 9**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF TOTAL PAH**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Total PAH Concentration or Non-detect Concentration in Sample</i>	<i>Short-tailed Shrew</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.2275 mg/kg</i>
SL1	2.4773	X
SL2	1.8292	X
SL3	0.5852	X
SL4	0.5715	X
SL5	3.6570	X
SL6	9.7523	X
SL7	27.9323	X
SL8	0.5540	X
SL9	35.4847	X
SL10	13.9068	X
SLC1	0.0095	
SLC2	0.5742	X
SLC3	0.6941	X
SLC4	2.0112	X
SLC5	0.9352	X
SLC6	5.3102	X
SLC7	1.3508	X
SLC8	0.1926	
SLC9	0.6849	X
SLC10	0.8727	X
SLC11	8.7769	X

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

X = Sample concentration exceeded the PCL



**TABLE 10**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ENDOSULFAN II**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Endosulfan II Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.0021 mg/kg</i>
GSUC1	0.0003	
GSUC2	0.0003	
GSUC3	0.0003	
GSUC4	0.0016	
GSUC5	0.0017	
GSUC6	0.0003	
GSUC7	0.0003	
GSUC8	0.0003	
GSUC9	0.0003	
GSUC10	0.0003	
JC1	0.0020	
JC2	0.0003	
JC3	0.0003	
JC4	0.0068	X
JC5	0.0016	
JC6	0.0067	X
JC7	0.0332	X
JC12	0.0003	
JC13	0.0016	
JC14	0.0003	
JC15	0.0003	
JC16	0.0006	
JC17	0.0003	
JC18	0.0332	X
JC19	0.0329	X
JC20	0.0016	
JC21	0.0016	
JC22	0.0003	
JC23	0.0003	
MB1	0.0003	
MB2	0.0003	
MB3	0.0003	
MB4	0.0003	
MB5	0.0003	
MB6	0.0003	



**TABLE 10**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ENDOSULFAN II**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Endosulfan II Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.0021 mg/kg</i>
MB7	0.0003	
MB8	0.0003	
MB9	0.0003	
MB10	0.0017	
MB11	0.0003	
MB12	0.0003	
MB13	0.0003	
MB14	0.0017	
MB15	0.0003	
MB16	0.0003	
MB17	0.0003	
MB18	0.0003	
MB19	0.0003	
MB20	0.0003	
MB21	0.0034	X
MB22	0.0003	
MB23	0.0003	
MB24	0.0017	
MB25	0.0003	
MB26	0.0003	
MB27	0.0003	
MB28	0.0003	
MB29	0.0003	
MB30	0.0003	
MB31	0.0003	
MB32	0.0003	
MB33	0.0003	
MB34	0.0003	
MB35	0.0003	
MB36	0.0002	
MB37	0.0003	
MB38	0.0003	
MB39	0.0003	
MB40	0.0003	
MB41	0.0003	



**TABLE 10**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ENDOSULFAN II**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Endosulfan II Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.0021 mg/kg</i>
MB42	0.0003	
MB43	0.0003	
MB44	0.0003	
MB45	0.0003	
MB46	0.0003	
MB47	0.0003	
MB48	0.0003	
MB49	0.0017	
MB50	0.0016	
MB51	0.0016	
MB52	0.0016	
MB53	0.0003	
MB54	0.0017	
MB55	0.0003	
MB56	0.0017	
MB57	0.0017	
MB58	0.0003	
MB59	0.0047	X
MB60	0.0016	
MB61	0.0017	
MB62	0.0932	X
MB63	0.0033	X
SL1	0.0017	
SL2	0.0003	
SL3	0.0003	
SL4	0.0003	
SL5	0.0003	
SL6	0.3801	X
SL7	1.0062	X
SL8	0.0003	
SL9	0.0266	X
SL10	0.0362	X
SLC1	0.0003	
SLC2	0.0016	
SLC3	0.0003	



**TABLE 10**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ENDOSULFAN II**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Endosulfan II Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.0021 mg/kg</i>
SLC4	0.0017	
SLC5	0.0016	
SLC6	0.0033	X
SLC7	0.0003	
SLC8	0.0003	
SLC9	0.0017	
SLC10	0.0003	
SLC11	0.0017	

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

X = Sample concentration exceeded the PCL



TABLE 11  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ALUMINUM  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Aluminum Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>Wood Stork*</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 18300 mg/kg</i>	<i>PCL = 11700 mg/kg</i>	<i>PCL = 1742 mg/kg</i>	<i>PCL = 322 mg/kg</i>	<i>PCL = 290 mg/kg</i>	<i>PCL = 365 mg/kg</i>	<i>PCL = 238 mg/kg</i>	<i>PCL = 6657 mg/kg</i>	<i>PCL = 6482 mg/kg</i>	<i>PCL = 7800 mg/kg</i>
GSUC1	12331.30		X	X	X	X	X	X	X	X	X
GSUC2	10116.00			X	X	X	X	X	X	X	X
GSUC3	11353.30			X	X	X	X	X	X	X	X
GSUC4	7969.20			X	X	X	X	X	X	X	X
GSUC5	8737.60			X	X	X	X	X	X	X	X
GSUC6	5779.20			X	X	X	X	X			
GSUC7	8645.00			X	X	X	X	X	X	X	X
GSUC8	7381.4			X	X	X	X	X	X	X	
GSUC9	8923.80			X	X	X	X	X	X	X	X
GSUC10	9533.70			X	X	X	X	X	X	X	X
JC1	22518.40	X	X	X	X	X	X	X	X	X	X
JC2	23838.00	X	X	X	X	X	X	X	X	X	X
JC3	21546.00	X	X	X	X	X	X	X	X	X	X
JC4	19237.50	X	X	X	X	X	X	X	X	X	X
JC5	16085.5		X	X	X	X	X	X	X	X	X
JC6	12169.30		X	X	X	X	X	X	X	X	X
JC7	7636.00			X	X	X	X	X	X	X	
JC12	18437.00	X	X	X	X	X	X	X	X	X	X
JC13	21423	X	X	X	X	X	X	X	X	X	X
JC14	24391.90	X	X	X	X	X	X	X	X	X	X
JC15	28432.50	X	X	X	X	X	X	X	X	X	X
JC16	20119.00	X	X	X	X	X	X	X	X	X	X
JC17	17110.8		X	X	X	X	X	X	X	X	X
JC18	14333.8		X	X	X	X	X	X	X	X	X
JC19	12213.00		X	X	X	X	X	X	X	X	X
JC20	9547.20			X	X	X	X	X	X	X	X
JC21	14532.30		X	X	X	X	X	X	X	X	X
JC22	4606.00			X	X	X	X	X			
JC23	12499.20		X	X	X	X	X	X	X	X	X
MB1	7360.60			X	X	X	X	X	X	X	
MB2	15312.00		X	X	X	X	X	X	X	X	X
MB3	8432.00			X	X	X	X	X	X	X	X
MB4	7795.20			X	X	X	X	X	X	X	
MB5	13832.10		X	X	X	X	X	X	X	X	X
MB6	7891.20			X	X	X	X	X	X	X	X
MB7	6773.10			X	X	X	X	X	X	X	
MB8	10972.50			X	X	X	X	X	X	X	X
MB9	10055.10			X	X	X	X	X	X	X	X
MB10	7850.00			X	X	X	X	X	X	X	X
MB11	8576.70			X	X	X	X	X	X	X	X
MB12	13504.40		X	X	X	X	X	X	X	X	X
MB13	5787.30			X	X	X	X	X			
MB14	7140.00			X	X	X	X	X	X	X	



TABLE 11  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ALUMINUM  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Aluminum Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>Wood Stork*</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 18300 mg/kg</i>	<i>PCL = 11700 mg/kg</i>	<i>PCL = 1742 mg/kg</i>	<i>PCL = 322 mg/kg</i>	<i>PCL = 290 mg/kg</i>	<i>PCL = 365 mg/kg</i>	<i>PCL = 238 mg/kg</i>	<i>PCL = 6657 mg/kg</i>	<i>PCL = 6482 mg/kg</i>	<i>PCL = 7800 mg/kg</i>
MB15	4792.10			X	X	X	X	X			
MB16	6762.60			X	X	X	X	X	X	X	
MB17	6720.80			X	X	X	X	X	X	X	
MB18	8466.30			X	X	X	X	X	X	X	X
MB19	7964.80			X	X	X	X	X	X	X	X
MB20	11033.00			X	X	X	X	X	X	X	X
MB21	8806.50			X	X	X	X	X	X	X	X
MB22	7561.50			X	X	X	X	X	X	X	
MB23	3427.00			X	X	X	X	X			
MB24	6298.50			X	X	X	X	X			
MB25	9203.60			X	X	X	X	X	X	X	X
MB26	8167.50			X	X	X	X	X	X	X	X
MB27	8368.80			X	X	X	X	X	X	X	X
MB28	8221.20			X	X	X	X	X	X	X	X
MB29	5928.00			X	X	X	X	X			
MB30	10996.80			X	X	X	X	X	X	X	X
MB31	10713.60			X	X	X	X	X	X	X	X
MB32	17164.80		X	X	X	X	X	X	X	X	X
MB33	14191.80		X	X	X	X	X	X	X	X	X
MB34	4963.20			X	X	X	X	X			
MB35	12138.00		X	X	X	X	X	X	X	X	X
MB36	4892.40			X	X	X	X	X			
MB37	10329.60			X	X	X	X	X	X	X	X
MB38	10402.30			X	X	X	X	X	X	X	X
MB39	11979.90		X	X	X	X	X	X	X	X	X
MB40	9168.70			X	X	X	X	X	X	X	X
MB41	14616.00		X	X	X	X	X	X	X	X	X
MB42	7335.00			X	X	X	X	X	X	X	
MB43	7031.50			X	X	X	X	X	X	X	
MB44	6681.60			X	X	X	X	X	X	X	
MB45	9817.50			X	X	X	X	X	X	X	X
MB46	4981.50			X	X	X	X	X			
MB47	7750.40			X	X	X	X	X	X	X	
MB48	8467.20			X	X	X	X	X	X	X	X
MB49	7536.10			X	X	X	X	X	X	X	
MB50	7673.40			X	X	X	X	X	X	X	
MB51	10020.50			X	X	X	X	X	X	X	X
MB52	8343.00			X	X	X	X	X	X	X	X
MB53	10895.50			X	X	X	X	X	X	X	X
MB54	7009.20			X	X	X	X	X	X	X	
MB55	2931.80			X	X	X	X	X			
MB56	8572.20			X	X	X	X	X	X	X	X
MB57	6120.00			X	X	X	X	X			



TABLE 11  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ALUMINUM  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Aluminum Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>Wood Stork*</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 18300 mg/kg</i>	<i>PCL = 11700 mg/kg</i>	<i>PCL = 1742 mg/kg</i>	<i>PCL = 322 mg/kg</i>	<i>PCL = 290 mg/kg</i>	<i>PCL = 365 mg/kg</i>	<i>PCL = 238 mg/kg</i>	<i>PCL = 6657 mg/kg</i>	<i>PCL = 6482 mg/kg</i>	<i>PCL = 7800 mg/kg</i>
MB58	9526.50			X	X	X	X	X	X	X	X
MB59	14517.60		X	X	X	X	X	X	X	X	X
MB60	5472.00			X	X	X	X	X			
MB61	6996.60			X	X	X	X	X	X	X	
MB62	23343.30	X	X	X	X	X	X	X	X	X	X
MB63	16929.00		X	X	X	X	X	X	X	X	X
SL1	8672.40			X	X	X	X	X	X	X	X
SL2	9241.20			X	X	X	X	X	X	X	X
SL3	15497.60		X	X	X	X	X	X	X	X	X
SL4	26768.00	X	X	X	X	X	X	X	X	X	X
SL5	14264.10		X	X	X	X	X	X	X	X	X
SL6	4432.87			X	X	X	X	X			
SL7	8105.50			X	X	X	X	X	X	X	X
SL8	19319.20	X	X	X	X	X	X	X	X	X	X
SL9	6814.50			X	X	X	X	X	X	X	
SL10	7336.70			X	X	X	X	X	X	X	
SLC1	531.06				X	X	X	X			
SLC2	8816.40			X	X	X	X	X	X	X	X
SLC3	9225			X	X	X	X	X	X	X	X
SLC4	6880.00			X	X	X	X	X	X	X	
SLC5	7370.40			X	X	X	X	X	X	X	
SLC6	10533.60			X	X	X	X	X	X	X	X
SLC7	14727.50		X	X	X	X	X	X	X	X	X
SLC8	22000.80	X	X	X	X	X	X	X	X	X	X
SLC9	9135.00			X	X	X	X	X	X	X	X
SLC10	16137.00		X	X	X	X	X	X	X	X	X
SLC11	10335.60			X	X	X	X	X	X	X	X

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

\* Threatened and Endangered species or surrogate for Threatened and Endangered species

X = Sample concentration exceeded the PCL



TABLE 12  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ANTIMONY  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Antimony Concentration or Non-detect Concentration in Sample</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>White-faced Ibis*</i>	<i>Wood Stork*</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.2118 mg/kg</i>	<i>PCL = 0.0808 mg/kg</i>	<i>PCL = 0.081 mg/kg</i>	<i>PCL = 1.18 mg/kg</i>	<i>PCL = 0.465 mg/kg</i>	<i>PCL = 0.5234 mg/kg</i>	<i>PCL = 0.6635 mg/kg</i>
GSUC1	0.9035	X	X	X		X	X	X
GSUC2	0.8767	X	X	X		X	X	X
GSUC3	0.8838	X	X	X		X	X	X
GSUC4	0.9988	X	X	X		X	X	X
GSUC5	0.9906	X	X	X		X	X	X
GSUC6	0.9959	X	X	X		X	X	X
GSUC7	1.0004	X	X	X		X	X	X
GSUC8	0.9901	X	X	X		X	X	X
GSUC9	0.9813	X	X	X		X	X	X
GSUC10	1.0009	X	X	X		X	X	X
JC1	0.8680	X	X	X		X	X	X
JC2	0.9042	X	X	X		X	X	X
JC3	0.8694	X	X	X		X	X	X
JC4	0.8573	X	X	X		X	X	X
JC5	0.9044	X	X	X		X	X	X
JC6	0.8850	X	X	X		X	X	X
JC7	0.8765	X	X	X		X	X	X
JC12	1.2360	X	X	X	X	X	X	X
JC13	0.9804	X	X	X		X	X	X
JC14	0.9705	X	X	X		X	X	X
JC15	0.9834	X	X	X		X	X	X
JC16	0.9735	X	X	X		X	X	X
JC17	1.5345	X	X	X	X	X	X	X
JC18	1.0005	X	X	X		X	X	X
JC19	0.9983	X	X	X		X	X	X
JC20	0.9893	X	X	X		X	X	X
JC21	0.9829	X	X	X		X	X	X
JC22	0.9518	X	X	X		X	X	X
JC23	0.9811	X	X	X		X	X	X
MB1	0.9040	X	X	X		X	X	X
MB2	0.8923	X	X	X		X	X	X
MB3	0.9012	X	X	X		X	X	X
MB4	0.8770	X	X	X		X	X	X
MB5	0.9010	X	X	X		X	X	X
MB6	0.8768	X	X	X		X	X	X
MB7	0.8946	X	X	X		X	X	X
MB8	0.8778	X	X	X		X	X	X
MB9	0.8864	X	X	X		X	X	X
MB10	0.9025	X	X	X		X	X	X
MB11	0.9017	X	X	X		X	X	X
MB12	0.8941	X	X	X		X	X	X
MB13	0.8939	X	X	X		X	X	X
MB14	0.8946	X	X	X		X	X	X
MB15	0.8771	X	X	X		X	X	X
MB16	0.8951	X	X	X		X	X	X



TABLE 12  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ANTIMONY  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Antimony Concentration or Non-detect Concentration in Sample</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>White-faced Ibis*</i>	<i>Wood Stork*</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.2118 mg/kg</i>	<i>PCL = 0.0808 mg/kg</i>	<i>PCL = 0.081 mg/kg</i>	<i>PCL = 1.18 mg/kg</i>	<i>PCL = 0.465 mg/kg</i>	<i>PCL = 0.5234 mg/kg</i>	<i>PCL = 0.6635 mg/kg</i>
MB17	0.9027	X	X	X		X	X	X
MB18	0.8942	X	X	X		X	X	X
MB19	0.8856	X	X	X		X	X	X
MB20	0.9027	X	X	X		X	X	X
MB21	0.8868	X	X	X		X	X	X
MB22	0.8690	X	X	X		X	X	X
MB23	0.8855	X	X	X		X	X	X
MB24	0.9039	X	X	X		X	X	X
MB25	0.8778	X	X	X		X	X	X
MB26	0.8861	X	X	X		X	X	X
MB27	0.9035	X	X	X		X	X	X
MB28	0.8854	X	X	X		X	X	X
MB29	0.9029	X	X	X		X	X	X
MB30	0.8770	X	X	X		X	X	X
MB31	0.8928	X	X	X		X	X	X
MB32	0.9024	X	X	X		X	X	X
MB33	0.8680	X	X	X		X	X	X
MB34	0.8770	X	X	X		X	X	X
MB35	0.8854	X	X	X		X	X	X
MB36	0.4530	X	X	X				
MB37	0.9684	X	X	X		X	X	X
MB38	0.9811	X	X	X		X	X	X
MB39	0.9811	X	X	X		X	X	X
MB40	1.0000	X	X	X		X	X	X
MB41	0.9912	X	X	X		X	X	X
MB42	0.9900	X	X	X		X	X	X
MB43	0.9815	X	X	X		X	X	X
MB44	0.9907	X	X	X		X	X	X
MB45	0.9903	X	X	X		X	X	X
MB46	0.9705	X	X	X		X	X	X
MB47	0.9901	X	X	X		X	X	X
MB48	1.0001	X	X	X		X	X	X
MB49	0.9702	X	X	X		X	X	X
MB50	0.9908	X	X	X		X	X	X
MB51	0.9702	X	X	X		X	X	X
MB52	0.9801	X	X	X		X	X	X
MB53	1.0010	X	X	X		X	X	X
MB54	1.0006	X	X	X		X	X	X
MB55	0.9809	X	X	X		X	X	X
MB56	0.9992	X	X	X		X	X	X
MB57	0.9996	X	X	X		X	X	X
MB58	0.9811	X	X	X		X	X	X
MB59	0.9889	X	X	X		X	X	X
MB60	0.9713	X	X	X		X	X	X
MB61	0.9802	X	X	X		X	X	X



TABLE 12  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ANTIMONY  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Antimony Concentration or Non-detect Concentration in Sample</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>White-faced Ibis*</i>	<i>Wood Stork*</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.2118 mg/kg</i>	<i>PCL = 0.0808 mg/kg</i>	<i>PCL = 0.081 mg/kg</i>	<i>PCL = 1.18 mg/kg</i>	<i>PCL = 0.465 mg/kg</i>	<i>PCL = 0.5234 mg/kg</i>	<i>PCL = 0.6635 mg/kg</i>
MB62	0.9624	X	X	X		X	X	X
MB63	0.9882	X	X	X		X	X	X
SL1	0.9811	X	X	X		X	X	X
SL2	0.9921	X	X	X		X	X	X
SL3	0.9619	X	X	X		X	X	X
SL4	0.9688	X	X	X		X	X	X
SL5	0.9803	X	X	X		X	X	X
SL6	1.0956	X	X	X		X	X	X
SL7	1.6435	X	X	X	X	X	X	X
SL8	1.1607	X	X	X		X	X	X
SL9	1.9558	X	X	X	X	X	X	X
SL10	0.9903	X	X	X		X	X	X
SLC1	0.8768	X	X	X		X	X	X
SLC2	0.8690	X	X	X		X	X	X
SLC3	0.8856	X	X	X		X	X	X
SLC4	0.8672	X	X	X		X	X	X
SLC5	0.8864	X	X	X		X	X	X
SLC6	0.9009	X	X	X		X	X	X
SLC7	0.9042	X	X	X		X	X	X
SLC8	0.9042	X	X	X		X	X	X
SLC9	0.8926	X	X	X		X	X	X
SLC10	0.9999	X	X	X		X	X	X
SLC11	1.0022	X	X	X		X	X	X

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

\* Threatened and Endangered species or surrogate for Threatened and Endangered species

X = Sample concentration exceeded the PCL



**TABLE 13**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ARSENIC**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Arsenic Concentration or Non-detect Concentration in Sample</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 3.244 mg/kg</i>	<i>PCL = 4.16 mg/kg</i>
GSUC1	2.7294		
GSUC2	2.3014		
GSUC3	2.7076		
GSUC4	2.4743		
GSUC5	2.9718		
GSUC6	1.6908		
GSUC7	2.7911		
GSUC8	2.6741		
GSUC9	2.0099		
GSUC10	2.2008		
JC1	3.7101	X	
JC2	4.4799	X	X
JC3	2.7342		
JC4	11.6100	X	X
JC5	3.4174	X	
JC6	3.5786	X	
JC7	3.8778	X	
JC12	9.1670	X	X
JC13	3.5319	X	
JC14	4.9754	X	X
JC15	16.9257	X	X
JC16	3.2155		
JC17	12.2899	X	X
JC18	6.7821	X	X
JC19	2.9099		
JC20	4.7952	X	X
JC21	5.2883	X	X
JC22	7.3085	X	X
JC23	8.8704	X	X
MB1	3.2258		
MB2	2.9885		
MB3	3.4729	X	
MB4	1.2230		
MB5	1.8443		
MB6	1.4659		
MB7	0.9031		
MB8	1.9010		
MB9	2.0055		
MB10	2.3725		
MB11	0.9119		
MB12	4.7117	X	X
MB13	1.7305		
MB14	2.3310		
MB15	0.8858		
MB16	1.3393		



**TABLE 13**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ARSENIC**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Arsenic Concentration or Non-detect Concentration in Sample</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 3.244 mg/kg</i>	<i>PCL = 4.16 mg/kg</i>
MB17	0.9126		
MB18	1.9044		
MB19	1.2524		
MB20	0.9381		
MB21	2.8644		
MB22	0.8776		
MB23	1.1615		
MB24	1.3658		
MB25	2.0961		
MB26	1.3365		
MB27	1.1507		
MB28	1.0261		
MB29	1.2500		
MB30	1.4512		
MB31	1.6740		
MB32	2.3693		
MB33	1.8966		
MB34	0.8855		
MB35	1.3209		
MB36	2.4915		
MB37	4.3201	X	X
MB38	3.6088	X	
MB39	3.6236	X	
MB40	3.0470		
MB41	2.2579		
MB42	1.9575		
MB43	2.4969		
MB44	1.5245		
MB45	2.6350		
MB46	2.8487		
MB47	1.6285		
MB48	2.5920		
MB49	2.4752		
MB50	1.4876		
MB51	1.9282		
MB52	2.0331		
MB53	3.5959	X	
MB54	1.9989		
MB55	0.9316		
MB56	2.4570		
MB57	1.2383		
MB58	1.2483		
MB59	2.8141		
MB60	1.7442		
MB61	2.3153		



**TABLE 13**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF ARSENIC**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Arsenic Concentration or Non-detect Concentration in Sample</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 3.244 mg/kg</i>	<i>PCL = 4.16 mg/kg</i>
MB62	5.7609	X	X
MB63	3.9042	X	
SL1	1.9068		
SL2	2.8131		
SL3	4.7896	X	X
SL4	3.0912		
SL5	3.8859	X	
SL6	5.8136	X	X
SL7	4.5335	X	X
SL8	6.5202	X	X
SL9	2.6373		
SL10	1.9181		
SLC1	0.8851		
SLC2	2.4427		
SLC3	2.8782		
SLC4	2.8704		
SLC5	3.2719	X	
SLC6	3.6175	X	
SLC7	3.2264		
SLC8	2.8480		
SLC9	1.8166		
SLC10	2.4503		
SLC11	2.9389		

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

\* Threatened and Endangered species or surrogate for Threatened and Endangered species

X = Sample concentration exceeded the PCL



**TABLE 14**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF CADMIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Cadmium Concentration or Non-detect Concentration in Sample</i>	<i>American Robin</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.1348 mg/kg</i>	<i>PCL = 0.0725 mg/kg</i>	<i>PCL = 0.0905 mg/kg</i>
GSUC1	0.0650			
GSUC2	0.0632			
GSUC3	0.0639			
GSUC4	0.1399	X	X	X
GSUC5	0.4394	X	X	X
GSUC6	0.2752	X	X	X
GSUC7	0.1400	X	X	X
GSUC8	0.1386	X	X	X
GSUC9	0.1921	X	X	X
GSUC10	0.5702	X	X	X
JC1	0.2490	X	X	X
JC2	0.3148	X	X	X
JC3	0.2545	X	X	X
JC4	0.1121		X	X
JC5	0.1973	X	X	X
JC6	0.3381	X	X	X
JC7	0.2085	X	X	X
JC12	0.1344		X	X
JC13	0.1372	X	X	X
JC14	0.1359	X	X	X
JC15	0.1371	X	X	X
JC16	0.1357	X	X	X
JC17	0.1399	X	X	X
JC18	0.8273	X	X	X
JC19	0.5198	X	X	X
JC20	0.2190	X	X	X
JC21	0.3142	X	X	X
JC22	0.1401	X	X	X
JC23	0.1344		X	X
MB1	0.0652			
MB2	0.0644			
MB3	0.0648			
MB4	0.0632			
MB5	0.0698			
MB6	0.1756	X	X	X
MB7	0.0644			
MB8	0.0630			
MB9	0.1402	X	X	X
MB10	0.2240	X	X	X
MB11	0.1041		X	X
MB12	0.0991		X	X
MB13	0.0831		X	
MB14	0.1426	X	X	X
MB15	0.0631			



**TABLE 14**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF CADMIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Cadmium Concentration or Non-detect Concentration in Sample</i>	<i>American Robin</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.1348 mg/kg</i>	<i>PCL = 0.0725 mg/kg</i>	<i>PCL = 0.0905 mg/kg</i>
MB16	0.0743		X	
MB17	0.0650			
MB18	0.0644			
MB19	0.0637			
MB20	0.0649			
MB21	0.1168		X	X
MB22	0.0624			
MB23	0.0637			
MB24	0.0650			
MB25	0.0630			
MB26	0.0931		X	X
MB27	0.1081		X	X
MB28	0.0636			
MB29	0.0649			
MB30	0.0630			
MB31	0.0644			
MB32	0.0649			
MB33	0.0625			
MB34	0.0632			
MB35	0.0639			
MB36	0.0631			
MB37	0.1361	X	X	X
MB38	0.1371	X	X	X
MB39	0.1371	X	X	X
MB40	0.1399	X	X	X
MB41	0.1388	X	X	X
MB42	0.1386	X	X	X
MB43	0.1372	X	X	X
MB44	0.1386	X	X	X
MB45	0.1386	X	X	X
MB46	0.1358	X	X	X
MB47	0.1387	X	X	X
MB48	0.1400	X	X	X
MB49	0.1428	X	X	X
MB50	0.1385	X	X	X
MB51	0.1360	X	X	X
MB52	0.4374	X	X	X
MB53	0.4428	X	X	X
MB54	0.3682	X	X	X
MB55	0.1370	X	X	X
MB56	0.1400	X	X	X
MB57	0.1830	X	X	X
MB58	0.1373	X	X	X
MB59	0.1386	X	X	X



**TABLE 14**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF CADMIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Cadmium Concentration or Non-detect Concentration in Sample</i>	<i>American Robin</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.1348 mg/kg</i>	<i>PCL = 0.0725 mg/kg</i>	<i>PCL = 0.0905 mg/kg</i>
MB60	0.2668	X	X	X
MB61	0.3870	X	X	X
MB62	0.1345		X	X
MB63	0.1385	X	X	X
SL1	0.1372	X	X	X
SL2	0.1694	X	X	X
SL3	0.1971	X	X	X
SL4	0.1361	X	X	X
SL5	0.1374	X	X	X
SL6	0.1504	X	X	X
SL7	0.1755	X	X	X
SL8	0.1566	X	X	X
SL9	0.1386	X	X	X
SL10	0.1385	X	X	X
SLC1	0.0631			
SLC2	0.0626			
SLC3	0.2079	X	X	X
SLC4	0.1232		X	X
SLC5	0.0647			
SLC6	0.2532	X	X	X
SLC7	0.2932	X	X	X
SLC8	0.2570	X	X	X
SLC9	0.2109	X	X	X
SLC10	0.3970	X	X	X
SLC11	0.1399	X	X	X

## Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

\* Threatened and Endangered species or surrogate for Threatened and Endangered species

X = Sample concentration exceeded the PCL



**TABLE 15**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF TOTAL CHROMIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Total Chromium Concentration or Non-detect Concentration in Sample</i>	<i>American Robin</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 135 mg/kg</i>
GSUC1	19.4321	
GSUC2	21.0750	
GSUC3	15.5570	
GSUC4	30.0324	
GSUC5	12.8270	
GSUC6	10.6124	
GSUC7	11.6584	
GSUC8	14.4313	
GSUC9	16.8746	
GSUC10	15.0876	
JC1	25.0480	
JC2	26.7561	
JC3	20.2230	
JC4	20.4525	
JC5	18.9384	
JC6	22.3665	
JC7	13.5456	
JC12	22.9175	
JC13	11.6765	
JC14	24.3272	
JC15	31.7775	
JC16	21.5350	
JC17	18.2651	
JC18	28.0423	
JC19	21.0276	
JC20	17.2800	
JC21	16.0398	
JC22	16.7790	
JC23	20.2944	
MB1	9.4354	
MB2	15.1536	
MB3	13.3331	
MB4	9.0720	
MB5	15.3126	
MB6	17.5086	
MB7	8.4611	
MB8	16.3590	
MB9	15.7059	
MB10	17.2250	
MB11	15.0177	
MB12	20.5163	
MB13	37.6270	
MB14	23.5200	
MB15	17.4730	
MB16	45.9680	



**TABLE 15**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF TOTAL CHROMIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Total Chromium Concentration or Non-detect Concentration in Sample</i>	<i>American Robin</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 135 mg/kg</i>
MB17	6.0760	
MB18	53.4060	
MB19	8.0958	
MB20	10.4430	
MB21	28.8915	
MB22	7.7106	
MB23	48.8750	
MB24	6.4532	
MB25	9.3100	
MB26	62.7000	
MB27	7.2276	
MB28	8.8332	
MB29	7.9755	
MB30	10.8576	
MB31	12.2388	
MB32	15.2832	
MB33	15.6240	
MB34	7.6563	
MB35	11.8524	
MB36	6.1004	
MB37	14.3108	
MB38	12.0785	
MB39	17.6001	
MB40	19.8332	
MB41	28.9296	
MB42	12.7575	
MB43	18.8846	
MB44	11.2320	
MB45	10.9225	
MB46	6.4944	
MB47	10.2144	
MB48	48.1680	
MB49	58.1230	
MB50	34.3980	
MB51	36.2600	
MB52	36.1800	
MB53	29.3370	
MB54	42.9520	
MB55	11.4258	
MB56	56.9660	
MB57	26.7240	
MB58	32.1930	
MB59	64.6980	
MB60	27.1890	
MB61	22.1390	



**TABLE 15**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF TOTAL CHROMIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Total Chromium Concentration or Non-detect Concentration in Sample</i>	<i>American Robin</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 135 mg/kg</i>
MB62	84.9150	
MB63	53.4600	
SL1	13.4612	
SL2	11.3250	
SL3	17.5016	
SL4	21.5040	
SL5	16.9056	
SL6	97.2660	
SL7	144.7810	X
SL8	22.2794	
SL9	251.7900	X
SL10	78.3020	
SLC1	1.0354	
SLC2	12.6084	
SLC3	12.3410	
SLC4	13.2160	
SLC5	11.8524	
SLC6	41.0718	
SLC7	19.1115	
SLC8	21.2888	
SLC9	14.8248	
SLC10	16.1370	
SLC11	35.2350	

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

\* Threatened and Endangered species or surrogate for Threatened and Endangered species

X = Sample concentration exceeded the PCL



TABLE 16  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF CHROMIUM VI  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Chromium VI Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 1.98 mg/kg</i>	<i>PCL = 1.45 mg/kg</i>	<i>PCL = 1.59 mg/kg</i>	<i>PCL = 0.8507 mg/kg</i>	<i>PCL = 0.0655 mg/kg</i>	<i>PCL = 0.0188 mg/kg</i>	<i>PCL = 0.698 mg/kg</i>	<i>PCL = 1.055 mg/kg</i>
GSUC1	0.4121					X	X		
GSUC2	0.3934					X	X		
GSUC3	0.3972					X	X		
GSUC4	R								
GSUC5	R								
GSUC6	R								
GSUC7	R								
GSUC8	R								
GSUC9	R								
GSUC10	1.7226		X	X	X	X	X	X	X
JC1	0.4018					X	X		
JC2	0.3987					X	X		
JC3	3.9690	X	X	X	X	X	X	X	X
JC4	0.3983					X	X		
JC5	0.4006					X	X		
JC6	2.0202	X	X	X	X	X	X	X	X
JC7	0.3984					X	X		
JC12	0.4996					X	X		
JC13	0.5018					X	X		
JC14	0.4982					X	X		
JC15	0.5018					X	X		
JC16	0.5015					X	X		
JC17	0.5025					X	X		
JC18	0.4810					X	X		
JC19	0.4991					X	X		
JC20	R								
JC21	5.4270	X	X	X	X	X	X	X	X
JC22	R								
JC23	R								
MB1	0.4001					X	X		
MB2	2.8512	X	X	X	X	X	X	X	X
MB3	1.5810		X		X	X	X	X	X
MB4	1.6128		X	X	X	X	X	X	X
MB5	2.4957	X	X	X	X	X	X	X	X
MB6	1.5892		X		X	X	X	X	X
MB7	4.0090	X	X	X	X	X	X	X	X
MB8	1.5960		X	X	X	X	X	X	X
MB9	1.6066		X	X	X	X	X	X	X
MB10	0.5000					X	X		
MB11	4.9833	X	X	X	X	X	X	X	X
MB12	1.5953		X	X	X	X	X	X	X
MB13	3.9919	X	X	X	X	X	X	X	X
MB14	0.3990					X	X		



TABLE 16  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF CHROMIUM VI  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Chromium VI Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 1.98 mg/kg</i>	<i>PCL = 1.45 mg/kg</i>	<i>PCL = 1.59 mg/kg</i>	<i>PCL = 0.8507 mg/kg</i>	<i>PCL = 0.0655 mg/kg</i>	<i>PCL = 0.0188 mg/kg</i>	<i>PCL = 0.698 mg/kg</i>	<i>PCL = 1.055 mg/kg</i>
MB15	3.9963	X	X	X	X	X	X	X	X
MB16	4.0001	X	X	X	X	X	X	X	X
MB17	3.9928	X	X	X	X	X	X	X	X
MB18	0.3933					X	X		
MB19	4.0086	X	X	X	X	X	X	X	X
MB20	4.0120	X	X	X	X	X	X	X	X
MB21	0.4017					X	X		
MB22	0.4047					X	X		
MB23	4.0020	X	X	X	X	X	X	X	X
MB24	4.0001	X	X	X	X	X	X	X	X
MB25	3.9900	X	X	X	X	X	X	X	X
MB26	1.6005		X	X	X	X	X	X	X
MB27	3.9942	X	X	X	X	X	X	X	X
MB28	21.2160	X	X	X	X	X	X	X	X
MB29	3.9975	X	X	X	X	X	X	X	X
MB30	4.0020	X	X	X	X	X	X	X	X
MB31	4.0176	X	X	X	X	X	X	X	X
MB32	3.9936	X	X	X	X	X	X	X	X
MB33	3.9928	X	X	X	X	X	X	X	X
MB34	4.0044	X	X	X	X	X	X	X	X
MB35	3.9984	X	X	X	X	X	X	X	X
MB36	0.2325					X	X		
MB37	0.5003					X	X		
MB38	0.4930					X	X		
MB39	0.4930					X	X		
MB40	0.4986					X	X		
MB41	0.9408				X	X	X	X	
MB42	0.4950					X	X		
MB43	0.4879					X	X		
MB44	0.4992					X	X		
MB45	0.5100					X	X		
MB46	0.5166					X	X		
MB47	0.4928					X	X		
MB48	0.6480					X	X		
MB49	0.7735					X	X	X	
MB50	0.4998					X	X		
MB51	0.8330					X	X	X	
MB52	R								
MB53	R								
MB54	R								
MB55	0.4932					X	X		
MB56	0.4914					X	X		
MB57	R								



TABLE 16  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF CHROMIUM VI  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Chromium VI Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 1.98 mg/kg</i>	<i>PCL = 1.45 mg/kg</i>	<i>PCL = 1.59 mg/kg</i>	<i>PCL = 0.8507 mg/kg</i>	<i>PCL = 0.0655 mg/kg</i>	<i>PCL = 0.0188 mg/kg</i>	<i>PCL = 0.698 mg/kg</i>	<i>PCL = 1.055 mg/kg</i>
MB58	0.5037					X	X		
MB59	0.4997					X	X		
MB60	R								
MB61	R								
MB62	1.6650		X	X	X	X	X	X	X
MB63	0.5265					X	X		
SL1	0.6716					X	X		
SL2	0.6795					X	X		
SL3	0.5010					X	X		
SL4	0.4984					X	X		
SL5	0.4990					X	X		
SL6	3.3540	X	X	X	X	X	X	X	X
SL7	R								
SL8	0.4986					X	X		
SL9	R								
SL10	R								
SLC1	0.5010					X	X		
SLC2	1.9908	X	X	X	X	X	X	X	X
SLC3	0.4920					X	X		
SLC4	1.6000		X	X	X	X	X	X	X
SLC5	0.3984					X	X		
SLC6	1.6170		X	X	X	X	X	X	X
SLC7	0.5001					X	X		
SLC8	0.3987					X	X		
SLC9	0.4019					X	X		
SLC10	0.4950					X	X		
SLC11	R								

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

\* Threatened and Endangered species or surrogate for Threatened and Endangered species

R = rejected analytical sample

X = Sample concentration exceeded the PCL



**TABLE 17**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF COPPER**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Copper Concentration or Non-detect Concentration in Sample</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 36.75 mg/kg</i>	<i>PCL = 11.44 mg/kg</i>	<i>PCL = 2.7255 mg/kg</i>	<i>PCL = 8.38 mg/kg</i>
GSUC1	27.1352		X	X	X
GSUC2	36.8110	X	X	X	X
GSUC3	12.7435		X	X	X
GSUC4	48.7200	X	X	X	X
GSUC5	14.3002		X	X	X
GSUC6	13.1752		X	X	X
GSUC7	10.2752			X	X
GSUC8	21.1276		X	X	X
GSUC9	32.5260		X	X	X
GSUC10	29.2545		X	X	X
JC1	33.2320		X	X	X
JC2	147.9600	X	X	X	X
JC3	11.7810		X	X	X
JC4	9.4500			X	X
JC5	47.6495	X	X	X	X
JC6	644.5400	X	X	X	X
JC7	29.1496		X	X	X
JC12	50.5215	X	X	X	X
JC13	95.7280	X	X	X	X
JC14	7.5699			X	
JC15	9.7005			X	X
JC16	14.2780		X	X	X
JC17	4.5425			X	
JC18	215.0070	X	X	X	X
JC19	34.5681		X	X	X
JC20	199.1520	X	X	X	X
JC21	128.4390	X	X	X	X
JC22	40.1850	X	X	X	X
JC23	10.0800			X	X
MB1	7.0642			X	



**TABLE 17**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF COPPER**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Copper Concentration or Non-detect Concentration in Sample</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 36.75 mg/kg</i>	<i>PCL = 11.44 mg/kg</i>	<i>PCL = 2.7255 mg/kg</i>	<i>PCL = 8.38 mg/kg</i>
MB2	7.6032			X	
MB3	14.1763		X	X	X
MB4	7.1904			X	
MB5	8.7984			X	X
MB6	23.8928		X	X	X
MB7	6.7731			X	
MB8	13.0530		X	X	X
MB9	11.5509		X	X	X
MB10	44.7500	X	X	X	X
MB11	4.0002			X	
MB12	14.3577		X	X	X
MB13	17.6484		X	X	X
MB14	36.9600	X	X	X	X
MB15	16.5042		X	X	X
MB16	57.2390	X	X	X	X
MB17	2.3808				
MB18	51.3360	X	X	X	X
MB19	4.2444			X	
MB20	2.5223				
MB21	72.3060	X	X	X	X
MB22	3.2163			X	
MB23	50.8300	X	X	X	X
MB24	10.0113			X	X
MB25	4.8412			X	
MB26	69.1350	X	X	X	X
MB27	5.7377			X	
MB28	7.8336			X	
MB29	10.5495			X	X
MB30	5.8116			X	
MB31	4.4268			X	



**TABLE 17**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF COPPER**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Copper Concentration or Non-detect Concentration in Sample</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 36.75 mg/kg</i>	<i>PCL = 11.44 mg/kg</i>	<i>PCL = 2.7255 mg/kg</i>	<i>PCL = 8.38 mg/kg</i>
MB32	8.1792			X	
MB33	6.2496			X	
MB34	6.7116			X	
MB35	6.7473			X	
MB36	4.8018			X	
MB37	12.6430		X	X	X
MB38	8.2824			X	
MB39	17.4029		X	X	X
MB40	19.8886		X	X	X
MB41	19.3872		X	X	X
MB42	13.4325		X	X	X
MB43	35.0140		X	X	X
MB44	12.7488		X	X	X
MB45	7.2675			X	
MB46	6.7158			X	
MB47	12.4320		X	X	X
MB48	18.6624		X	X	X
MB49	43.0950	X	X	X	X
MB50	28.4886		X	X	X
MB51	39.9350	X	X	X	X
MB52	51.0300	X	X	X	X
MB53	39.6550	X	X	X	X
MB54	44.8400	X	X	X	X
MB55	20.0020		X	X	X
MB56	71.3440	X	X	X	X
MB57	34.2720		X	X	X
MB58	38.3250	X	X	X	X
MB59	54.1780	X	X	X	X
MB60	34.0290		X	X	X
MB61	32.7860		X	X	X



**TABLE 17**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF COPPER**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Copper Concentration or Non-detect Concentration in Sample</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 36.75 mg/kg</i>	<i>PCL = 11.44 mg/kg</i>	<i>PCL = 2.7255 mg/kg</i>	<i>PCL = 8.38 mg/kg</i>
MB62	61.9380	X	X	X	X
MB63	66.8250	X	X	X	X
SL1	40.8800	X	X	X	X
SL2	21.4722		X	X	X
SL3	11.3560			X	X
SL4	12.0400		X	X	X
SL5	35.5722		X	X	X
SL6	19.3414		X	X	X
SL7	28.0618		X	X	X
SL8	6.5202			X	
SL9	29.4525		X	X	X
SL10	35.8610		X	X	X
SLC1	0.4334				
SLC2	13.6512		X	X	X
SLC3	12.5870		X	X	X
SLC4	24.7680		X	X	X
SLC5	19.8204		X	X	X
SLC6	293.3700	X	X	X	X
SLC7	14.3165		X	X	X
SLC8	8.7576			X	X
SLC9	41.7600	X	X	X	X
SLC10	10.8405			X	X
SLC11	88.2180	X	X	X	X

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

\* Threatened and Endangered species or surrogate for Threatened and Endangered species

X = Sample concentration exceeded the PCL



**TABLE 18**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF LEAD**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Lead Concentration or Non-detect Concentration in Sample</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Spotted Sandpiper</i>	<i>Bullfrog</i>	<i>White-faced Ibis *</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 68.52 mg/kg</i>	<i>PCL = 145 mg/kg</i>	<i>PCL = 52.1 mg/kg</i>	<i>PCL = 19.7 mg/kg</i>	<i>PCL = 364 mg/kg</i>
GSUC1	23.2678				X	
GSUC2	23.8288				X	
GSUC3	16.6824					
GSUC4	21.4020				X	
GSUC5	12.3190					
GSUC6	8.4108					
GSUC7	9.3613					
GSUC8	14.9175					
GSUC9	14.8174					
GSUC10	13.1868					
JC1	14.9296					
JC2	22.8927				X	
JC3	13.1670					
JC4	19.2375					
JC5	13.7182					
JC6	26.1183				X	
JC7	28.9504				X	
JC12	18.0250					
JC13	9.6500					
JC14	14.9457					
JC15	26.2917				X	
JC16	16.0480					
JC17	12.6294					
JC18	32.9485				X	
JC19	69.0300	X		X	X	
JC20	16.5456					
JC21	16.5222					
JC22	23.9700				X	
JC23	25.3344				X	
MB1	8.1510					
MB2	9.4512					
MB3	13.0169					



**TABLE 18**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF LEAD**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Lead Concentration or Non-detect Concentration in Sample</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Spotted Sandpiper</i>	<i>Bullfrog</i>	<i>White-faced Ibis *</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 68.52 mg/kg</i>	<i>PCL = 145 mg/kg</i>	<i>PCL = 52.1 mg/kg</i>	<i>PCL = 19.7 mg/kg</i>	<i>PCL = 364 mg/kg</i>
MB4	8.6688					
MB5	11.8863					
MB6	19.2896					
MB7	6.8786					
MB8	16.7865					
MB9	14.4317					
MB10	41.2500				X	
MB11	5.8647					
MB12	26.8233				X	
MB13	26.3580				X	
MB14	54.3900			X	X	
MB15	10.1032					
MB16	30.0560				X	
MB17	3.5216					
MB18	48.6450				X	
MB19	4.2968					
MB20	5.3690					
MB21	65.5080			X	X	
MB22	4.4730					
MB23	15.6400					
MB24	6.8510					
MB25	4.7348					
MB26	60.0600				X	
MB27	4.3746					
MB28	5.3856					
MB29	5.8110					
MB30	6.1944					
MB31	7.0308					
MB32	8.1792					
MB33	8.8102					
MB34	4.1877					
MB35	6.8544					



**TABLE 18**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF LEAD**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Lead Concentration or Non-detect Concentration in Sample</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Spotted Sandpiper</i>	<i>Bullfrog</i>	<i>White-faced Ibis *</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 68.52 mg/kg</i>	<i>PCL = 145 mg/kg</i>	<i>PCL = 52.1 mg/kg</i>	<i>PCL = 19.7 mg/kg</i>	<i>PCL = 364 mg/kg</i>
MB36	5.9494					
MB37	14.6336					
MB38	10.9446					
MB39	13.4589					
MB40	29.3620				X	
MB41	34.2720				X	
MB42	11.7225					
MB43	18.3106					
MB44	11.3280					
MB45	8.8400					
MB46	7.5645					
MB47	7.9296					
MB48	20.6064				X	
MB49	24.3100				X	
MB50	33.8100				X	
MB51	28.4200				X	
MB52	31.5900				X	
MB53	31.0695				X	
MB54	36.1080				X	
MB55	6.7267					
MB56	53.8720			X	X	
MB57	24.0720				X	
MB58	29.1270				X	
MB59	81.0040	X		X	X	
MB60	32.6610				X	
MB61	30.7580				X	
MB62	140.1930	X		X	X	
MB63	66.4200			X	X	
SL1	14.6876					
SL2	12.6387					
SL3	15.2304					
SL4	10.8640					



**TABLE 18**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF LEAD**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Lead Concentration or Non-detect Concentration in Sample</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Spotted Sandpiper</i>	<i>Bullfrog</i>	<i>White-faced Ibis *</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 68.52 mg/kg</i>	<i>PCL = 145 mg/kg</i>	<i>PCL = 52.1 mg/kg</i>	<i>PCL = 19.7 mg/kg</i>	<i>PCL = 364 mg/kg</i>
SL5	17.1991					
SL6	693.1600	X	X	X	X	X
SL7	449.9950	X	X	X	X	X
SL8	16.5148					
SL9	311.0800	X	X	X	X	
SL10	196.4130	X	X	X	X	
SLC1	7.9242					
SLC2	11.2496					
SLC3	10.1680					
SLC4	12.4480					
SLC5	12.6492					
SLC6	54.0540			X	X	
SLC7	10.2750					
SLC8	41.0112				X	
SLC9	8.1432					
SLC10	9.1575					
SLC11	22.9158				X	

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

\* Threatened and Endangered species or surrogate for Threatened and Endangered species

X = Sample concentration exceeded the PCL



TABLE 19  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF MANGANESE  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Manganese Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 680 mg/kg</i>	<i>PCL = 70.5 mg/kg</i>	<i>PCL = 95.82 mg/kg</i>	<i>PCL = 136 mg/kg</i>	<i>PCL = 114 mg/kg</i>	<i>PCL = 97 mg/kg</i>	<i>PCL = 21.99 mg/kg</i>	<i>PCL = 25.65 mg/kg</i>
GSUC1	431.1200		X	X	X	X	X	X	X
GSUC2	325.9600		X	X	X	X	X	X	X
GSUC3	393.8900		X	X	X	X	X	X	X
GSUC4	217.1520		X	X	X	X	X	X	X
GSUC5	253.7460		X	X	X	X	X	X	X
GSUC6	127.7960		X	X		X	X	X	X
GSUC7	313.6900		X	X	X	X	X	X	X
GSUC8	232.0500		X	X	X	X	X	X	X
GSUC9	160.1280		X	X	X	X	X	X	X
GSUC10	145.5300		X	X	X	X	X	X	X
JC1	386.8800		X	X	X	X	X	X	X
JC2	259.3410		X	X	X	X	X	X	X
JC3	236.8800		X	X	X	X	X	X	X
JC4	803.2500	X	X	X	X	X	X	X	X
JC5	150.5360		X	X	X	X	X	X	X
JC6	264.5500		X	X	X	X	X	X	X
JC7	104.2480		X	X			X	X	X
JC12	428.4800		X	X	X	X	X	X	X
JC13	87.0430		X					X	X
JC14	86.6980		X					X	X
JC15	319.7820		X	X	X	X	X	X	X
JC16	257.2400		X	X	X	X	X	X	X
JC17	489.5590		X	X	X	X	X	X	X
JC18	229.4370		X	X	X	X	X	X	X
JC19	192.7530		X	X	X	X	X	X	X
JC20	898.5600	X	X	X	X	X	X	X	X
JC21	681.3900	X	X	X	X	X	X	X	X
JC22	151.3400		X	X	X	X	X	X	X
JC23	109.5360		X	X			X	X	X
MB1	498.9400		X	X	X	X	X	X	X
MB2	83.4240		X					X	X
MB3	205.5300		X	X	X	X	X	X	X
MB4	37.9680							X	X
MB5	53.2980							X	X
MB6	134.2600		X	X		X	X	X	X
MB7	23.2100							X	
MB8	232.8450		X	X	X	X	X	X	X
MB9	213.8440		X	X	X	X	X	X	X
MB10	282.5000		X	X	X	X	X	X	X
MB11	24.1029							X	
MB12	219.2610		X	X	X	X	X	X	X
MB13	83.4670		X					X	X
MB14	233.1000		X	X	X	X	X	X	X
MB15	13.5113								



TABLE 19  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF MANGANESE  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Manganese Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 680 mg/kg</i>	<i>PCL = 70.5 mg/kg</i>	<i>PCL = 95.82 mg/kg</i>	<i>PCL = 136 mg/kg</i>	<i>PCL = 114 mg/kg</i>	<i>PCL = 97 mg/kg</i>	<i>PCL = 21.99 mg/kg</i>	<i>PCL = 25.65 mg/kg</i>
MB16	44.8630							X	X
MB17	24.8000							X	
MB18	36.2250							X	X
MB19	48.2080							X	X
MB20	36.2850							X	X
MB21	315.1800		X	X	X	X	X	X	X
MB22	23.0040							X	
MB23	10.0740								
MB24	47.9570							X	X
MB25	47.0820							X	X
MB26	32.3400							X	X
MB27	50.0860							X	X
MB28	67.5240							X	X
MB29	62.7900							X	X
MB30	44.5440							X	X
MB31	53.9400							X	X
MB32	74.8800		X					X	X
MB33	41.8376							X	X
MB34	21.1500								
MB35	51.4080							X	X
MB36	241.9020		X	X	X	X	X	X	X
MB37	506.7960		X	X	X	X	X	X	X
MB38	292.3490		X	X	X	X	X	X	X
MB39	202.1300		X	X	X	X	X	X	X
MB40	160.1060		X	X	X	X	X	X	X
MB41	74.5920		X					X	X
MB42	303.7500		X	X	X	X	X	X	X
MB43	171.3390		X	X	X	X	X	X	X
MB44	56.8320							X	X
MB45	46.3250							X	X
MB46	199.2600		X	X	X	X	X	X	X
MB47	49.7280							X	X
MB48	55.0800							X	X
MB49	50.8300							X	X
MB50	24.4314							X	
MB51	25.2350							X	
MB52	91.5300		X					X	X
MB53	72.3800		X					X	X
MB54	192.5760		X	X	X	X	X	X	X
MB55	7.4665								
MB56	229.3200		X	X	X	X	X	X	X
MB57	25.7040							X	X
MB58	22.7760							X	
MB59	126.7660		X	X		X	X	X	X



TABLE 19  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF MANGANESE  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Manganese Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>American Robin</i>	<i>Belted Kingfisher</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>	<i>Bullfrog</i>	<i>Painted Turtle*</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 680 mg/kg</i>	<i>PCL = 70.5 mg/kg</i>	<i>PCL = 95.82 mg/kg</i>	<i>PCL = 136 mg/kg</i>	<i>PCL = 114 mg/kg</i>	<i>PCL = 97 mg/kg</i>	<i>PCL = 21.99 mg/kg</i>	<i>PCL = 25.65 mg/kg</i>
MB60	132.3540		X	X		X	X	X	X
MB61	187.5900		X	X	X	X	X	X	X
MB62	305.0280		X	X	X	X	X	X	X
MB63	397.3050		X	X	X	X	X	X	X
SL1	48.4720							X	X
SL2	76.5570		X					X	X
SL3	383.4320		X	X	X	X	X	X	X
SL4	64.4000							X	X
SL5	66.9180							X	X
SL6	69.8750							X	X
SL7	163.7870		X	X	X	X	X	X	X
SL8	207.2140		X	X	X	X	X	X	X
SL9	132.0550		X	X		X	X	X	X
SL10	60.2070							X	X
SLC1	15.5310								
SLC2	134.9320		X	X		X	X	X	X
SLC3	140.6300		X	X	X	X	X	X	X
SLC4	204.4800		X	X	X	X	X	X	X
SLC5	381.9660		X	X	X	X	X	X	X
SLC6	57.7500							X	X
SLC7	139.0550		X	X	X	X	X	X	X
SLC8	52.4032							X	X
SLC9	55.3320							X	X
SLC10	95.5350		X					X	X
SLC11	129.4560		X	X		X	X	X	X

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

\* Threatened and Endangered species or surrogate for Threatened and Endangered species

X = Sample concentration exceeded the PCL



TABLE 20  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF SELENIUM  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Selenium Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.24 mg/kg</i>	<i>PCL = 0.558 mg/kg</i>	<i>PCL = 0.569 mg/kg</i>	<i>PCL = 1.189 mg/kg</i>	<i>PCL = 0.489 mg/kg</i>	<i>PCL = 0.637 mg/kg</i>
GSUC1	0.9795	X	X	X		X	X
GSUC2	0.9498	X	X	X		X	X
GSUC3	0.9599	X	X	X		X	X
GSUC4	0.9814	X	X	X		X	X
GSUC5	0.9703	X	X	X		X	X
GSUC6	0.9615	X	X	X		X	X
GSUC7	0.9806	X	X	X		X	X
GSUC8	0.9702	X	X	X		X	X
GSUC9	0.9619	X	X	X		X	X
GSUC10	0.9801	X	X	X		X	X
JC1	0.9424	X	X	X		X	X
JC2	0.9782	X	X	X		X	X
JC3	0.9387	X	X	X		X	X
JC4	0.9315	X	X	X		X	X
JC5	0.9773	X	X	X		X	X
JC6	0.9620	X	X	X		X	X
JC7	0.9495	X	X	X		X	X
JC12	0.9425	X	X	X		X	X
JC13	0.9611	X	X	X		X	X
JC14	0.9511	X	X	X		X	X
JC15	1.7862	X	X	X	X	X	X
JC16	0.9499	X	X	X		X	X
JC17	4.9024	X	X	X	X	X	X
JC18	0.9812	X	X	X		X	X
JC19	0.9824	X	X	X		X	X
JC20	0.9720	X	X	X		X	X
JC21	0.9829	X	X	X		X	X
JC22	0.9800	X	X	X		X	X
JC23	0.9408	X	X	X		X	X
MB1	0.9781	X	X	X		X	X
MB2	0.9715	X	X	X		X	X
MB3	0.9802	X	X	X		X	X
MB4	0.9509	X	X	X		X	X
MB5	0.9771	X	X	X		X	X
MB6	0.9508	X	X	X		X	X
MB7	0.9685	X	X	X		X	X
MB8	0.9519	X	X	X		X	X
MB9	0.9584	X	X	X		X	X
MB10	0.9800	X	X	X		X	X
MB11	0.9797	X	X	X		X	X
MB12	0.9683	X	X	X		X	X
MB13	2.1965	X	X	X	X	X	X
MB14	0.9702	X	X	X		X	X
MB15	0.9498	X	X	X		X	X
MB16	0.9702	X	X	X		X	X

TABLE 20  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF SELENIUM  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Selenium Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.24 mg/kg</i>	<i>PCL = 0.558 mg/kg</i>	<i>PCL = 0.569 mg/kg</i>	<i>PCL = 1.189 mg/kg</i>	<i>PCL = 0.489 mg/kg</i>	<i>PCL = 0.637 mg/kg</i>
MB17	0.9796	X	X	X		X	X
MB18	0.9688	X	X	X		X	X
MB19	0.9589	X	X	X		X	X
MB20	0.9794	X	X	X		X	X
MB21	0.9610	X	X	X		X	X
MB22	0.9415	X	X	X		X	X
MB23	0.9603	X	X	X		X	X
MB24	0.9790	X	X	X		X	X
MB25	0.9496	X	X	X		X	X
MB26	0.9603	X	X	X		X	X
MB27	0.9795	X	X	X		X	X
MB28	0.9588	X	X	X		X	X
MB29	0.9789	X	X	X		X	X
MB30	0.9500	X	X	X		X	X
MB31	0.9709	X	X	X		X	X
MB32	0.9792	X	X	X		X	X
MB33	0.9418	X	X	X		X	X
MB34	0.9503	X	X	X		X	X
MB35	0.9603	X	X	X		X	X
MB36	0.4439	X					
MB37	0.9523	X	X	X		X	X
MB38	0.9614	X	X	X		X	X
MB39	0.9614	X	X	X		X	X
MB40	0.9806	X	X	X		X	X
MB41	0.9710	X	X	X		X	X
MB42	0.9698	X	X	X		X	X
MB43	0.9615	X	X	X		X	X
MB44	0.9696	X	X	X		X	X
MB45	0.9690	X	X	X		X	X
MB46	0.9520	X	X	X		X	X
MB47	0.9699	X	X	X		X	X
MB48	0.9806	X	X	X		X	X
MB49	0.9525	X	X	X		X	X
MB50	0.9702	X	X	X		X	X
MB51	0.9506	X	X	X		X	X
MB52	0.9612	X	X	X		X	X
MB53	0.9818	X	X	X		X	X
MB54	0.9794	X	X	X		X	X
MB55	0.9604	X	X	X		X	X
MB56	0.9792	X	X	X		X	X
MB57	0.9792	X	X	X		X	X
MB58	0.9614	X	X	X		X	X
MB59	0.9705	X	X	X		X	X
MB60	0.9508	X	X	X		X	X
MB61	0.9616	X	X	X		X	X



TABLE 20  
UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF SELENIUM  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

<i>Sediment Sample Locations</i>	<i>Selenium Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Muskrat</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Marsh Wren</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 0.24 mg/kg</i>	<i>PCL = 0.558 mg/kg</i>	<i>PCL = 0.569 mg/kg</i>	<i>PCL = 1.189 mg/kg</i>	<i>PCL = 0.489 mg/kg</i>	<i>PCL = 0.637 mg/kg</i>
MB62	0.9424	X	X	X		X	X
MB63	0.9720	X	X	X		X	X
SL1	0.9607	X	X	X		X	X
SL2	0.9694	X	X	X		X	X
SL3	0.9419	X	X	X		X	X
SL4	0.9520	X	X	X		X	X
SL5	0.9627	X	X	X		X	X
SL6	0.9727	X	X	X		X	X
SL7	0.9224	X	X	X		X	X
SL8	0.9971	X	X	X		X	X
SL9	0.9702	X	X	X		X	X
SL10	0.9706	X	X	X		X	X
SLC1	0.9519	X	X	X		X	X
SLC2	0.9417	X	X	X		X	X
SLC3	0.9594	X	X	X		X	X
SLC4	0.9408	X	X	X		X	X
SLC5	0.9611	X	X	X		X	X
SLC6	0.9794	X	X	X		X	X
SLC7	0.9796	X	X	X		X	X
SLC8	0.9826	X	X	X		X	X
SLC9	0.9709	X	X	X		X	X
SLC10	0.9801	X	X	X		X	X
SLC11	0.9814	X	X	X		X	X

Notes:  
All concentrations are in wet weight.  
ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .  
GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.  
\* Threatened and Endangered species or surrogate for Threatened and Endangered species  
X = Sample concentration exceeded the PCL

**TABLE 21**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF VANADIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Vanadium Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 102.5 mg/kg</i>	<i>PCL = 34.3 mg/kg</i>	<i>PCL = 67.7 mg/kg</i>	<i>PCL = 49.36 mg/kg</i>
GSUC1	22.4436				
GSUC2	18.0402				
GSUC3	22.7728				
GSUC4	18.6528				
GSUC5	18.1356				
GSUC6	12.0228				
GSUC7	18.6732				
GSUC8	16.2435				
GSUC9	17.2082				
GSUC10	16.0083				
JC1	35.4144		X		
JC2	35.0172		X		
JC3	37.3590		X		
JC4	61.2900		X		X
JC5	30.8963				
JC6	19.4805				
JC7	11.0224				
JC12	50.8305		X		X
JC13	19.4930				
JC14	53.3128		X		X
JC15	109.7160	X	X	X	X
JC16	35.8720		X		
JC17	32.9315				
JC18	29.5334				
JC19	22.6206				
JC20	17.6688				
JC21	21.4668				
JC22	8.3660				
JC23	21.7728				
MB1	17.5864				
MB2	28.3536				
MB3	18.9720				



**TABLE 21**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF VANADIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Vanadium Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 102.5 mg/kg</i>	<i>PCL = 34.3 mg/kg</i>	<i>PCL = 67.7 mg/kg</i>	<i>PCL = 49.36 mg/kg</i>
MB4	14.3136				
MB5	26.9874				
MB6	14.6316				
MB7	13.3774				
MB8	20.2920				
MB9	19.2792				
MB10	13.7250				
MB11	15.1872				
MB12	26.4152				
MB13	13.5992				
MB14	12.9570				
MB15	10.1897				
MB16	12.1550				
MB17	11.4824				
MB18	18.4230				
MB19	15.7724				
MB20	19.5585				
MB21	16.2534				
MB22	11.7789				
MB23	9.6600				
MB24	10.7627				
MB25	17.5294				
MB26	16.3350				
MB27	12.3947				
MB28	13.1376				
MB29	10.6860				
MB30	21.1932				
MB31	23.2128				
MB32	28.9152				
MB33	29.1214				
MB34	9.0522				
MB35	23.0979				

**TABLE 21**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF VANADIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Vanadium Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 102.5 mg/kg</i>	<i>PCL = 34.3 mg/kg</i>	<i>PCL = 67.7 mg/kg</i>	<i>PCL = 49.36 mg/kg</i>
MB36	11.4760				
MB37	23.1878				
MB38	23.1710				
MB39	23.7133				
MB40	20.1379				
MB41	27.1488				
MB42	14.3100				
MB43	14.5222				
MB44	13.1904				
MB45	21.8450				
MB46	11.9187				
MB47	16.8000				
MB48	17.7984				
MB49	16.1551				
MB50	16.7286				
MB51	19.6490				
MB52	14.0940				
MB53	22.4070				
MB54	13.5700				
MB55	5.9595				
MB56	16.3800				
MB57	11.6892				
MB58	17.9799				
MB59	21.1189				
MB60	12.0042				
MB61	15.6325				
MB62	42.6240		X		
MB63	29.9295				
SL1	17.8120				
SL2	18.9807				
SL3	35.7380		X		
SL4	34.3840		X		



**TABLE 21**  
**UPPER TROPHIC LEVEL ROC SEDIMENT PCL EXCEEDANCES OF VANADIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sediment Sample Locations</i>	<i>Vanadium Concentration or Non-detect Concentration in Sample</i>	<i>Raccoon</i>	<i>Short-tailed Shrew</i>	<i>American Robin</i>	<i>Spotted Sandpiper</i>
<i>Sample ID</i>	<i>mg/kg</i>	<i>PCL = 102.5 mg/kg</i>	<i>PCL = 34.3 mg/kg</i>	<i>PCL = 67.7 mg/kg</i>	<i>PCL = 49.36 mg/kg</i>
SL5	27.6477				
SL6	8.9999				
SL7	14.8694				
SL8	51.5698		X		X
SL9	13.5905				
SL10	15.0353				
SLC1	1.2525				
SLC2	16.4952				
SLC3	19.0650				
SLC4	14.2400				
SLC5	16.3344				
SLC6	19.2192				
SLC7	36.7845		X		
SLC8	33.6064				
SLC9	21.7152				
SLC10	29.3535				
SLC11	19.2618				

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

X = Sample concentration exceeded the PCL

TABLE 22  
UPPER TROPHIC LEVEL ROC SOIL PCL EXCEEDANCES OF ALUMINUM  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Soil Sample Locations	Aluminum Concentration or Non-detect Concentration in Sample (mg/kg)				Raccoon (0-6 inches)	Raccoon (6-12 inches)	Raccoon (12-24 inches)	Raccoon (54-60 inches)
Sample ID	0-6 inches	6-12 inches	12-24 inches	54-60 inches	PCL: 791 mg/kg	PCL: 791 mg/kg	PCL: 791 mg/kg	PCL: 791 mg/kg
JC8	16256.70	—	—	—	X			
JC9	4349.10	—	—	—	X			
JC10	13030.20	—	—	—	X			
JC11	20810.40	—	—	—	X			
JCSP1	31581.50	35258.40	36281.50	34971.60	X	X	X	X
JCSP2	28954.80	29046.00	33820.00	29719.20	X	X	X	X
JCSP3	15893.00	14706.00	3208.13	—	X	X	X	
JCSP4	12094.60	13080.40	5055.30	—	X	X	X	
JCSP5	31879.00	29686.50	22464.00	—	X	X	X	
JCSP6	25702.50	27381.90	26520.30	—	X	X	X	
JCSP7	30130.50	28163.60	28815.20	27186.20	X	X	X	X
JCSP8	26110.00	26662.50	33842.40	36014.80	X	X	X	X
JCSP9	28397.00	14545.20	35751.20	4431.00	X	X	X	X
JCSP10	32614.40	34777.60	32421.60	32403.20	X	X	X	X
JCSP11	31363.20	32003.10	28869.10	31098.00	X	X	X	X
JCSP12	30077.30	30843.00	21255.00	—	X	X	X	
JCSP13	7412.80	3996.72	4844.30	—	X	X	X	
JCSP14	22783.60	28886.00	31585.90	29693.40	X	X	X	X
JCSP15	24780.80	24460.90	29134.60	26275.20	X	X	X	X
JCSP16	16144.30	17661.00	20880.00	—	X	X	X	
JCSP17	23157.00	28751.70	37541.70	33408.00	X	X	X	X
JCSP18	27930.20	21413.20	34609.30	—	X	X	X	
JCSP19	31122.00	10396.00	15411.20	—	X	X	X	
JCSP20	32390.10	26937.60	29605.00	—	X	X	X	
JCSP21	25726.20	5015.85	14117.00	—	X	X	X	
JCSP22	23546.90	21945.00	—	—	X	X		
JCSP23	22820.00	—	—	—	X			
JCSP24	30594.30	—	—	—	X			
JCSP25	36345.50	—	—	—	X			

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

— = Data not collected at this depth

X = Sample concentration exceeded the PCL



**TABLE 23**  
**UPPER TROPHIC LEVEL ROC SOIL PCL EXCEEDANCES OF CADMIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Soil Sample Locations</i>	<i>Cadmium Concentration or Non-detect Concentration in Sample (mg/kg)</i>				<i>American Robin (0-6 inches)</i>
<i>Sample ID</i>	<i>0-6 inches</i>	<i>6-12 inches</i>	<i>12-24 inches</i>	<i>54-60 inches</i>	<i>PCL: 0.0343 mg/kg</i>
JC-8	0.28	—	—	—	X
JC-9	0.12	—	—	—	X
JC-10	0.31	—	—	—	X
JC-11	0.31	—	—	—	X
JCSP-1	0.14	0.14	0.14	0.20	X
JCSP-2	0.15	0.14	0.14	0.33	X
JCSP-3	0.23	0.14	0.14	—	X
JCSP-4	0.17	0.14	0.14	—	X
JCSP-5	0.14	0.14	0.28	—	X
JCSP-6	0.24	0.20	0.19	—	X
JCSP-7	0.26	0.31	0.14	0.14	X
JCSP-8	0.16	0.14	0.14	0.14	X
JCSP-9	0.14	0.15	0.23	0.29	X
JCSP-10	0.14	0.14	0.14	0.14	X
JCSP-11	0.14	0.13	0.18	0.14	X
JCSP-12	0.26	0.25	0.14	—	X
JCSP-13	0.14	0.14	0.14	—	X
JCSP-14	0.16	0.14	0.14	0.14	X
JCSP-15	0.25	0.13	0.14	0.15	X
JCSP-16	0.31	0.14	0.14	—	X
JCSP-17	0.14	0.13	0.14	0.14	X
JCSP-18	0.14	0.14	0.13	—	X
JCSP-19	0.27	0.21	0.16	—	X
JCSP-20	0.14	0.13	0.14	—	X
JCSP-21	0.13	0.14	0.14	—	X
JCSP-22	0.14	0.13	—	—	X
JCSP-23	0.14	—	—	—	X
JCSP-24	0.14	—	—	—	X
JCSP-25	0.14	—	—	—	X

## Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

— = Data not collected at this depth

X = sample concentration exceeded the PCL

**TABLE 24**  
**UPPER TROPHIC LEVEL ROC SOIL PCL EXCEEDANCES OF TOTAL CHROMIUM**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Soil Sample Locations</i>	<i>Total Chromium Concentration or Non-detect Concentration in Sample (mg/kg)</i>				<i>American Robin (0-6 inches)</i>
<i>Sample ID</i>	<i>0-6 inches</i>	<i>6-12 inches</i>	<i>12-24 inches</i>	<i>54-60 inches</i>	<i>PCL: 9.101 mg/kg</i>
JC-8	68.31	—	—	—	X
JC-9	5.66	—	—	—	
JC-10	30.42	—	—	—	X
JC-11	19.56	—	—	—	X
JCSP-1	31.96	32.35	34.05	32.12	X
JCSP-2	30.26	29.19	32.61	28.19	X
JCSP-3	219.74	69.77	54.62	—	X
JCSP-4	83.10	88.23	5.24	—	X
JCSP-5	33.87	33.28	76.05	—	X
JCSP-6	33.75	30.45	28.87	—	X
JCSP-7	39.03	37.58	31.93	29.44	X
JCSP-8	28.14	30.72	39.79	38.09	X
JCSP-9	62.78	171.12	36.22	5.91	X
JCSP-10	35.36	38.93	35.62	32.27	X
JCSP-11	33.90	31.06	31.14	31.52	X
JCSP-12	32.07	33.26	22.56	—	X
JCSP-13	5.65	3.54	36.40	—	
JCSP-14	24.37	30.89	32.87	31.51	X
JCSP-15	27.81	27.79	32.76	27.99	X
JCSP-16	110.20	32.28	21.24	—	X
JCSP-17	28.68	31.26	36.20	34.63	X
JCSP-18	27.43	19.90	33.40	—	X
JCSP-19	110.88	119.60	91.65	—	X
JCSP-20	44.68	29.72	31.62	—	X
JCSP-21	30.98	8.51	19.24	—	X
JCSP-22	21.32	22.52	—	—	X
JCSP-23	21.84	—	—	—	X
JCSP-24	46.09	—	—	—	X
JCSP-25	35.64	—	—	—	X

## Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1.

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

— = Data not collected at this depth

X = sample concentration exceeded the PCL



TABLE 25  
UPPER TROPHIC LEVEL ROC SOIL PCL EXCEEDANCES OF CHROMIUM VI  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Soil Sample Locations	Chromium VI Concentration or Non-detect Concentration in Sample (mg/kg)				Raccoon (0-6 inches)	Raccoon (6-12 inches)	Raccoon (12-24 inches)	Raccoon (54-60 inches)	American Robin (0-6 inches)
Sample ID	0-6 inches	6-12 inches	12-24 inches	54-60 inches	PCL: 3.478 mg/kg	PCL: 3.478 mg/kg	PCL: 3.478 mg/kg	PCL: 3.478 mg/kg	PCL: 0.2236 mg/kg wet weight
JC8	1.53	—	—	—					X
JC9	0.39	—	—	—					X
JC10	0.40	—	—	—					X
JC11	1.60	—	—	—					X
JCSP1	0.50	0.50	0.50	0.50					X
JCSP2	10.03	5.01	2.49	0.50	X	X			X
JCSP3	8.98	2.46	2.67	—	X				X
JCSP4	0.89	0.50	0.55	—					X
JCSP5	4.97	4.98	4.04	—	X	X	X		X
JCSP6	4.99	0.50	1.99	—	X				X
JCSP7	5.01	2.49	5.00	0.50	X		X		X
JCSP8	10.01	4.98	2.48	0.50	X	X			X
JCSP9	1.46	4.78	0.73	5.95		X		X	X
JCSP10	12.47	0.50	0.56	0.50	X				X
JCSP11	5.01	0.50	0.59	0.50	X				X
JCSP12	5.03	0.50	2.47	—					X
JCSP13	0.50	0.50	0.50	—					X
JCSP14	4.97	2.00	0.50	0.50	X				X
JCSP15	5.00	2.51	2.51	0.50	X				X
JCSP16	1.54	4.99	0.50	—		X			X
JCSP17	0.50	0.63	0.78	0.50					X
JCSP18	0.50	0.50	0.50	—					X
JCSP19	2.52	2.35	2.51	—					X
JCSP20	0.50	0.50	0.50	—					X
JCSP21	0.50	0.50	0.50	—					X
JCSP22	0.92	0.50	—	—					X
JCSP23	0.50	—	—	—					X
JCSP24	0.50	—	—	—					X
JCSP25	0.77	—	—	—					X

Notes:

- All concentrations are in wet weight.
- ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .
- GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.
- = Data not collected at this depth
- X = Sample concentration exceeded the PCL

TABLE 26  
UPPER TROPHIC LEVEL ROC SOIL PCL EXCEEDANCES OF LEAD  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Soil Sample Locations	Lead Concentration or Non-detect Concentration in Sample (mg/kg)				Short-tailed Shrew (0-6 inches)	Short-tailed Shrew (6-12 inches)	Short-tailed Shrew (12-24 inches)	Short-tailed Shrew (54-60 inches)	American Robin (0-6 inches)
Sample ID	0-6 inches	6-12 inches	12-24 inches	54-60 inches	PCL: 0.2832 mg/kg	PCL: 0.2832 mg/kg	PCL: 0.2832 mg/kg	PCL: 0.2832 mg/kg	PCL: 2.946 mg/kg
JC8	328.78	—	—	—	X				X
JC9	4.38	—	—	—	X				X
JC10	17.29	—	—	—	X				X
JC11	16.98	—	—	—	X				X
JCSP1	19.86	17.11	20.56	13.82	X	X	X	X	X
JCSP2	26.27	17.13	18.58	13.71	X	X	X	X	X
JCSP3	371.07	64.77	5.89	—	X	X	X		X
JCSP4	46.30	105.51	2.19	—	X	X	X		X
JCSP5	26.84	33.86	259.16	—	X	X	X		X
JCSP6	17.88	29.38	19.91	—	X	X	X		X
JCSP7	25.28	27.23	14.99	14.79	X	X	X	X	X
JCSP8	18.83	17.92	18.69	25.35	X	X	X	X	X
JCSP9	83.22	164.70	18.01	5.02	X	X	X	X	X
JCSP10	63.58	48.36	29.01	13.41	X	X	X	X	X
JCSP11	23.96	14.65	13.99	17.32	X	X	X	X	X
JCSP12	23.57	15.18	12.42	—	X	X	X		X
JCSP13	0.60	0.58	6.58	—	X	X	X		
JCSP14	18.82	16.23	15.61	13.43	X	X	X	X	X
JCSP15	17.39	14.71	20.28	19.42	X	X	X	X	X
JCSP16	23.36	13.95	13.61	—	X	X	X		X
JCSP17	14.34	13.12	13.57	10.01	X	X	X	X	X
JCSP18	11.34	15.42	11.96	—	X	X	X		X
JCSP19	148.68	15.59	185.86	—	X	X	X		X
JCSP20	44.81	16.62	16.82	—	X	X	X		X
JCSP21	12.30	3.03	6.99	—	X	X	X		X
JCSP22	10.74	8.42	—	—	X	X			X
JCSP23	8.75	—	—	—	X				X
JCSP24	49.79	—	—	—	X				X
JCSP25	14.29	—	—	—	X				X

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

— = Data not collected at this depth

X = Sample concentration exceeded the PCL



TABLE 27  
UPPER TROPHIC LEVEL ROC SOIL PCL EXCEEDANCES OF MANGANESE  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Soil Sample Locations	Manganese Concentration or Non-detect Concentration in Sample (mg/kg)				Raccoon (0-6 inches)	Raccoon (6-12 inches)	Raccoon (12-24 inches)	Raccoon (54-60 inches)
Sample ID	0-6 inches	6-12 inches	12-24 inches	54-60 inches	PCL: 275 mg/kg	PCL: 275 mg/kg	PCL: 275 mg/kg	PCL: 275 mg/kg
JC8	164.03	—	—	—				
JC9	62.13	—	—	—				
JC10	165.19	—	—	—				
JC11	295.80	—	—	—	X			
JCSP1	257.22	193.47	293.53	1544.00			X	X
JCSP2	980.48	437.81	283.38	447.53	X	X	X	X
JCSP3	176.21	112.18	46.49	—				
JCSP4	164.72	148.08	43.91	—				
JCSP5	634.03	458.13	135.14	—	X	X		
JCSP6	348.66	450.23	138.65	—	X	X		
JCSP7	890.40	1314.82	92.67	80.36	X	X		
JCSP8	401.10	846.09	262.67	188.31	X	X		
JCSP9	404.42	167.56	1220.61	251.09	X		X	
JCSP10	1842.40	4125.44	2047.68	78.35	X	X	X	
JCSP11	315.08	75.82	574.63	122.83	X		X	
JCSP12	653.28	266.34	105.30	—	X			
JCSP13	56.05	41.58	57.98	—				
JCSP14	475.14	111.54	66.45	137.21	X			
JCSP15	373.82	190.66	328.98	312.73	X		X	X
JCSP16	352.64	370.88	1713.60	—	X	X	X	
JCSP17	334.66	111.85	67.02	79.20	X			
JCSP18	216.84	346.77	107.60	—		X		
JCSP19	311.22	126.50	182.27	—	X			
JCSP20	1543.95	521.18	576.66	—	X	X	X	
JCSP21	266.16	57.32	89.16	—				
JCSP22	62.28	236.78	—	—				
JCSP23	307.30	—	—	—	X			
JCSP24	366.97	—	—	—	X			
JCSP25	89.49	—	—	—				

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

— = Data not collected at this depth

X = Sample concentration exceeded the PCL

TABLE 28  
UPPER TROPHIC LEVEL ROC SOIL PCL EXCEEDANCES OF VANADIUM  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Soil Sample Locations	Vanadium Concentration or Non-detect Concentration in Sample (mg/kg)				Raccoon (0-6 inches)	Raccoon (6-12 inches)	Raccoon (12-24 inches)	Raccoon (54-60 inches)	Short-tailed shrew (0-6 inches)	Short-tailed shrew (6-12 inches)	Short-tailed shrew (12-24 inches)	Short-tailed shrew (54-60 inches)	American robin (0-6 inches)
Sample ID	0-6 inches	6-12 inches	12-24 inches	54-60 inches	PCL: 14.26 mg/kg	PCL: 14.26 mg/kg	PCL: 14.26 mg/kg	PCL: 14.26 mg/kg	PCL: 5.863 mg/kg	PCL: 5.863 mg/kg	PCL: 5.863 mg/kg	PCL: 5.863 mg/kg	PCL: 9.209 mg/kg
JC8	24.06	—	—	—	X				X				X
JC9	18.87	—	—	—	X				X				X
JC10	32.42	—	—	—	X				X				X
JC11	31.95	—	—	—	X				X				X
JCSP1	60.65	63.79	67.27	55.89	X	X	X	X	X	X	X	X	X
JCSP2	67.25	62.39	73.34	58.46	X	X	X	X	X	X	X	X	X
JCSP3	34.48	26.68	14.65	—	X	X	X		X	X	X		X
JCSP4	39.25	32.95	22.40	—	X	X	X		X	X	X		X
JCSP5	51.69	46.55	32.00	—	X	X	X		X	X	X		X
JCSP6	58.26	78.23	64.27	—	X	X	X		X	X	X		X
JCSP7	79.50	89.47	66.75	61.21	X	X	X	X	X	X	X	X	X
JCSP8	55.23	71.10	99.83	78.04	X	X	X	X	X	X	X	X	X
JCSP9	51.17	31.16	76.04	15.95	X	X	X	X	X	X	X	X	X
JCSP10	94.86	107.71	77.50	60.76	X	X	X	X	X	X	X	X	X
JCSP11	70.71	55.33	55.60	60.71	X	X	X	X	X	X	X	X	X
JCSP12	59.71	63.00	37.57	—	X	X	X		X	X	X		X
JCSP13	31.37	23.18	13.83	—	X	X			X	X	X		X
JCSP14	43.98	63.99	66.52	58.44	X	X	X	X	X	X	X	X	X
JCSP15	52.52	60.30	75.97	55.41	X	X	X	X	X	X	X	X	X
JCSP16	38.35	38.43	37.80	—	X	X	X		X	X	X		X
JCSP17	69.99	67.54	72.11	61.34	X	X	X	X	X	X	X	X	X
JCSP18	53.28	39.07	57.58	—	X	X	X		X	X	X		X
JCSP19	42.84	27.78	24.83	—	X	X	X		X	X	X		X
JCSP20	77.53	52.05	52.87	—	X	X	X		X	X	X		X
JCSP21	48.46	13.49	29.42	—	X		X		X	X	X		X
JCSP22	34.21	45.38	—	—	X	X			X	X			X
JCSP23	40.46	—	—	—	X				X				X
JCSP24	60.31	—	—	—	X				X				X
JCSP25	67.12	—	—	—	X				X				X

Notes:

All concentrations are in wet weight.

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

— = Data not collected at this depth

X = Sample concentration exceeded the PCL



TABLE 29  
COPEC PCL EXCEEDANCES IN SEDIMENT SAMPLES  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Sample ID	Carbon Disulfide	Ethylbenzene	Dibenzofuran	Penta-Chlorophenol	Total PAHs	Endosulfan II	Aluminum	Antimony	Arsenic	Cadmium	Chromium Total	Chromium VI	Copper	Lead	Manganese	Selenium	Vanadium	Total COPEC exceedances
GSUC1			X	X	X		X	X				X	X	X	X	X		10
GSUC2			X	X	X		X	X				X	X	X	X	X		10
GSUC3			X	X	X		X	X				X	X		X	X		9
GSUC4			X	X	X		X	X		X			X	X	X	X		10
GSUC5			X	X	X		X	X		X			X		X	X		9
GSUC6			X	X	X		X	X		X			X		X	X		9
GSUC7			X	X	X		X	X		X			X		X	X		9
GSUC8			X	X	X		X	X		X			X		X	X		9
GSUC9			X	X	X		X	X		X			X		X	X		9
GSUC10			X	X	X		X	X		X		X	X		X	X		10
JC1			X	X	X		X	X	X	X		X	X		X	X	X	12
JC2		X	X	X	X		X	X	X	X		X	X	X	X	X	X	14
JC3			X	X			X	X		X		X	X		X	X	X	10
JC4			X	X	X	X	X	X	X	X		X	X		X	X	X	13
JC5			X	X	X		X	X	X	X		X	X		X	X		11
JC6			X	X	X	X	X	X	X	X		X	X	X	X	X		13
JC7	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		15
JC12			X	X	X		X	X	X	X		X	X		X	X	X	12
JC13			X	X	X		X	X	X	X		X	X		X	X		11
JC14			X	X	X		X	X	X	X		X	X		X	X	X	12
JC15			X	X	X		X	X	X	X		X	X	X	X	X	X	13
JC16			X	X	X		X	X		X		X	X		X	X	X	11
JC17		X	X	X	X		X	X	X	X		X	X		X	X		12
JC18		X	X	X	X	X	X	X	X	X		X	X	X	X	X		14
JC19			X	X	X	X	X	X		X		X	X	X	X	X		12
JC20			X	X	X		X	X	X	X			X		X	X		10
JC21		X	X	X	X		X	X	X	X		X	X		X	X		12
JC22		X	X	X	X		X	X	X	X			X	X	X	X		12
JC23			X	X	X		X	X	X	X			X	X	X	X		11
MB1			X	X	X		X	X				X	X		X	X		9
MB2			X	X			X	X				X	X		X	X		8
MB3			X	X	X		X	X	X			X	X		X	X		10
MB4			X	X			X	X				X	X		X	X		8
MB5			X	X			X	X				X	X		X	X		8
MB6			X	X	X		X	X		X		X	X		X	X		10

TABLE 29  
COPEC PCL EXCEEDANCES IN SEDIMENT SAMPLES  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Sample ID	Carbon Disulfide	Ethylbenzene	Dibenzofuran	Penta-Chlorophenol	Total PAHs	Endosulfan II	Aluminum	Antimony	Arsenic	Cadmium	Chromium Total	Chromium VI	Copper	Lead	Manganese	Selenium	Vanadium	Total COPEC exceedances
MB7			X	X			X	X				X	X		X	X		8
MB8			X	X			X	X				X	X		X	X		8
MB9			X	X			X	X		X		X	X		X	X		9
MB10		X	X	X	X		X	X		X		X	X	X	X	X		12
MB11			X	X			X	X		X		X	X		X	X		9
MB12			X	X			X	X	X	X		X	X	X	X	X		11
MB13			X	X	X		X	X		X		X	X	X	X	X		11
MB14	X	X	X	X	X		X	X		X		X	X	X	X	X		13
MB15			X	X			X	X				X	X			X		7
MB16			X	X	X		X	X		X		X	X	X	X	X		11
MB17			X	X			X	X				X			X	X		7
MB18			X	X	X		X	X				X	X	X	X	X		10
MB19			X	X			X	X				X	X		X	X		8
MB20			X	X			X	X				X			X	X		7
MB21	X	X	X	X	X	X	X	X		X		X	X	X	X	X		14
MB22			X	X			X	X				X	X		X	X		8
MB23			X	X			X	X				X	X			X		7
MB24	X	X	X	X	X		X	X				X	X		X	X		11
MB25			X	X			X	X				X	X		X	X		8
MB26			X	X	X		X	X		X		X	X	X	X	X		11
MB27			X	X			X	X		X		X	X		X	X		9
MB28			X	X			X	X				X	X		X	X		8
MB29			X	X	X		X	X				X	X		X	X		9
MB30			X	X			X	X				X	X		X	X		8
MB31			X	X			X	X				X	X		X	X		8
MB32			X	X			X	X				X	X		X	X		8
MB33			X	X			X	X				X	X		X	X		8
MB34			X	X			X	X				X	X			X		7
MB35			X	X	X		X	X				X	X		X	X		9
MB36			X	X	X		X	X				X	X		X	X		9
MB37			X	X	X		X	X	X	X		X	X		X	X		11
MB38			X	X	X		X	X	X	X		X	X		X	X		11
MB39			X	X	X		X	X	X	X		X	X		X	X		11
MB40			X	X	X		X	X		X		X	X	X	X	X		11
MB41			X	X	X		X	X		X		X	X	X	X	X		11



TABLE 29  
COPEC PCL EXCEEDANCES IN SEDIMENT SAMPLES  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Sample ID	Carbon Disulfide	Ethylbenzene	Dibenzofuran	Penta-Chlorophenol	Total PAHs	Endosulfan II	Aluminum	Antimony	Arsenic	Cadmium	Chromium Total	Chromium VI	Copper	Lead	Manganese	Selenium	Vanadium	Total COPEC exceedances
MB42			X	X	X		X	X		X		X	X		X	X		10
MB43			X	X	X		X	X		X		X	X		X	X		10
MB44			X	X	X		X	X		X		X	X		X	X		10
MB45			X	X	X		X	X		X		X	X		X	X		10
MB46			X	X	X		X	X		X		X	X		X	X		10
MB47			X	X	X		X	X		X		X	X		X	X		10
MB48			X	X	X		X	X		X		X	X	X	X	X		11
MB49			X	X	X		X	X		X		X	X	X	X	X		11
MB50			X	X	X		X	X		X		X	X	X	X	X		11
MB51			X	X	X		X	X		X		X	X	X	X	X		11
MB52			X	X	X		X	X		X			X	X	X	X		10
MB53			X	X	X		X	X	X	X			X	X	X	X		11
MB54			X	X	X		X	X		X			X	X	X	X		10
MB55			X	X	X		X	X		X		X	X			X		9
MB56	X	X	X	X	X		X	X		X		X	X	X	X	X		13
MB57			X	X	X		X	X		X			X	X	X	X		10
MB58			X	X	X		X	X		X		X	X	X	X	X		11
MB59			X	X	X	X	X	X		X		X	X	X	X	X		12
MB60			X	X	X		X	X		X			X	X	X	X		10
MB61			X	X	X		X	X		X			X	X	X	X		10
MB62			X	X	X	X	X	X	X	X		X	X	X	X	X	X	14
MB63			X	X	X	X	X	X	X	X		X	X	X	X	X		13
SL1			X	X	X		X	X		X		X	X		X	X		10
SL2			X	X	X		X	X		X		X	X		X	X		10
SL3			X	X	X		X	X	X	X		X	X		X	X	X	12
SL4			X	X	X		X	X		X		X	X		X	X	X	11
SL5			X	X	X		X	X	X	X		X	X		X	X		11
SL6			X	X	X	X	X	X	X	X		X	X	X	X	X		13
SL7			X	X	X	X	X	X	X	X	X		X	X	X	X		13
SL8			X	X	X		X	X	X	X		X	X		X	X	X	12
SL9			X	X	X	X	X	X		X	X		X	X	X	X		12
SL10			X	X	X	X	X	X		X			X	X	X	X		11
SLC1			X	X			X	X				X				X		6
SLC2			X	X	X		X	X				X	X		X	X		9
SLC3			X	X	X		X	X		X		X	X		X	X		10

TABLE 29  
COPEC PCL EXCEEDANCES IN SEDIMENT SAMPLES  
STAR LAKE CANAL SUPERFUND SITE  
JEFFERSON COUNTY, TEXAS

Sample ID	Carbon Disulfide	Ethylbenzene	Dibenzofuran	Penta-Chlorophenol	Total PAHs	Endosulfan II	Aluminum	Antimony	Arsenic	Cadmium	Chromium Total	Chromium VI	Copper	Lead	Manganese	Selenium	Vanadium	Total COPEC exceedances
SLC4			X	X	X		X	X		X		X	X		X	X		10
SLC5			X	X	X		X	X	X			X	X		X	X		10
SLC6		X	X	X	X	X	X	X	X	X		X	X	X	X	X		14
SLC7			X	X	X		X	X		X		X	X		X	X	X	11
SLC8			X	X			X	X		X		X	X	X	X	X		10
SLC9			X	X	X		X	X		X		X	X		X	X		10
SLC10			X	X	X		X	X		X		X	X		X	X		10
SLC11			X	X	X		X	X		X			X	X	X	X		10

Notes:  
ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .  
GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.  
X = PCL exceedance occurred for at least one receptor



**TABLE 30**  
**COPEC PCL EXCEEDANCES IN SOIL SAMPLES**  
**STAR LAKE CANAL SUPERFUND SITE**  
**JEFFERSON COUNTY, TEXAS**

<i>Sample ID</i>	<i>Aluminum</i>	<i>Cadmium</i>	<i>Chromium Total</i>	<i>Chromium VI</i>	<i>Lead</i>	<i>Manganese</i>	<i>Vanadium</i>	<i>Total COPEC exceedances</i>
JC8	X	X	X	X	X		X	6
JC9	X	X		X	X		X	5
JC10	X	X	X	X	X		X	6
JC11	X	X	X	X	X	X	X	7
JCSP1	X	X	X	X	X	X	X	7
JCSP2	X	X	X	X	X	X	X	7
JCSP3	X	X	X	X	X		X	6
JCSP4	X	X	X	X	X		X	6
JCSP5	X	X	X	X	X	X	X	7
JCSP6	X	X	X	X	X	X	X	7
JCSP7	X	X	X	X	X	X	X	7
JCSP8	X	X	X	X	X	X	X	7
JCSP9	X	X	X	X	X	X	X	7
JCSP10	X	X	X	X	X	X	X	7
JCSP11	X	X	X	X	X	X	X	7
JCSP12	X	X	X	X	X	X	X	7
JCSP13	X	X		X	X		X	5
JCSP14	X	X	X	X	X	X	X	7
JCSP15	X	X	X	X	X	X	X	7
JCSP16	X	X	X	X	X	X	X	7
JCSP17	X	X	X	X	X	X	X	7
JCSP18	X	X	X	X	X	X	X	7
JCSP19	X	X	X	X	X	X	X	7
JCSP20	X	X	X	X	X	X	X	7
JCSP21	X	X	X	X	X		X	6
JCSP22	X	X	X	X	X		X	6
JCSP23	X	X	X	X	X	X	X	7
JCSP24	X	X	X	X	X	X	X	7
JCSP25	X	X	X	X	X		X	6

## Notes:

ROC PCLs were only compared for those ROCs with a GMATC HQ>1 .

GMATC PCLs were used for all ROCs except threatened and endangered species, which used NOAEL PCLs.

X = PCL exceedance occurred for at least one receptor